TV-13142
TV-13142W

JVC

SERVICE MANUAL

TV/VCR COMBO

TV-13142
TV-13142W

VHS
SQPB
4 HEAD

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No. 51810
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SPECIFICATIONS

TELEVISION

Picture Tube:	13" (measured diagonally)
Tuner Type:	Quartz PLL Frequency Synthesized
Receiving Channels:	VHF 2-13
	UHF 14-69
	CATV 14-36 (A)-(W)
	37-59 (AA)-(WW)
	60-85 (AAA)-(ZZZ)
	86-94 (86)-(94)
	95-99 (A-5)-(A-1)
	100-125 (100)-(125)
	01 (5A)
Antenna Input:	VHF/UHF In 75 ohms coaxial
Speaker:	1.5" × 2.5", 8 ohms x 1
Audio Output Power:	1.5 W

VCR

Video System:	VHS ,4 Rotary Heads Helical scanning System
Video Signal:	NTSC Color
Cassette Tape:	VHS
Video Head:	4 Head
Audio Track:	Hi-Fi Sound - 2 Tracks
	MONO Sound - 1 Tracks
Tape Speed:	SP:33.35mm/sec
	EP:11.12mm/sec
F.FWD/REW Time:	Approx. 1 minutes and 48 seconds (T-120 Cassette)
Speed Search:	SP 3&5 X Normal Speed
	EP 9&15 X Normal Speed

GENERAL

Power Source:	AC 120V 60Hz
Power Consumption:	65 Watts
Dimensions:	W 19-3/4" x D 19" x H 20-1/4"
Weight:	55.2 lbs
Inputs/Outputs:	Video: In (RCA) 1Vp-p 75 ohm
	Out (RCA) 1Vp-p 75 ohm
	Audio: In (RCA) 300 mV/50K ohm
	Out (RCA) 300 mV/1K ohm
Headphone Jack:	3.5mm Stereo mini-jack
Storage Temperature	-20 ºC ~ 60 ºC
Operating Temperature	5 ºC ~ 40 ºC

Accessories:

Remote Control X 1

Batteries (AA) X 2

Design & specification are subject to change without notice.

SAFTY PRECAUITONS

SERVICING NOTICES ON CHECKING

1. KEEP THE NOTICES

As for the places which need special attentions, they are indicated with the labels or seals on the cabinet, chassis and parts. Make sure to keep the indications and notices in the operation manual.

2. AVOID AN ELECTRIC SHOCK

There is a high voltage part inside. Avoid an electric shock while the electric current is flowing.

3. USE THE DESIGNATED PARTS

The parts in this equipment have the specific characters of incombustibility and withstand voltage for safety. Therefore, the part which is replaced should be used the part which has the same character.
Especially as to the important parts for safety which is indicated in the circuit diagram or the table of parts as a ⚠ mark, the designated parts must be used.

4. PUT PARTS AND WIRES IN THE ORIGINAL POSITION AFTER ASSEMBLING OR WIRING

There are parts which use the insulation material such as a tube or tape for safety, or which are assembled in the condition that these do not contact with the printed board. The inside wiring is designed not to get closer to the pyrogenic parts and high voltage parts. Therefore, put these parts in the original positions.

5. TAKE CARE TO DEAL WITH THE CATHODE-RAY TUBE

In the condition that an explosion-proof cathode-ray tube is set in this equipment, safety is secured against implosion. However, when removing it or serving from backward, it is dangerous to give a shock. Take enough care to deal with it.

6. AVOID AN X-RAY

Safety is secured against an X-ray by considering about the cathode-ray tube and the high voltage peripheral circuit, etc.
Therefore, when repairing the high voltage peripheral circuit, use the designated parts and make sure not modify the circuit.
Repairing except indicates causes rising of high voltage, and it emits an X-ray from the cathode-ray tube.

7. PERFORM A SAFETY CHECK AFTER SERVICING

Confirm that the screws, parts and wiring which were removed in order to service are put in the original positions, or whether there are the portions which are deteriorated around the serviced places serviced or not. Check the insulation between the antenna terminal or external metal and the AC cord plug blades. And be sure the safety of that.

(INSULATION CHECK PROCEDURE)

1. Unplug the plug from the AC outlet.
2. Remove the antenna terminal on TV and turn on the TV.
3. Insulation resistance between the cord plug terminals and the eternal exposure metal **[Note 2]** should be more than 1M ohm by using the 500V insulation resistance meter **[Note 1]**.
4. If the insulation resistance is less than 1M ohm, the inspection repair should be required.

[Note 1]

If you have not the 500V insulation resistance meter, use a Tester.

[Note 2]

External exposure metal: Antenna terminal
Earphone jack

HOW TO ORDER PARTS

Please include the following informations when you order parts. (Particularly the VERSION LETTER.)

1. MODEL NUMBER and VERSION LETTER
   The MODEL NUMBER can be found on the back of each product and the VERSION LETTER can be found at the end of the SERIAL NUMBER.
2. PART NO. and DESCRIPTION
   You can find it in your SERVICE MANUAL.

SPECIFIC SERVICE INSTRUCTIONS

DISASSEMBLY INSTRUCTIONS

1. REMOVAL OF MECHANICAL PARTS AND P.C. BOARDS

1-1: BACK CABINET (Refer to Fig. 1-1)

1. Remove the 4 screws ①.
2. Remove the screw ②.
3. Remove the AC cord from the AC cord hook ③.
4. Remove the Back Cabinet in the direction of arrow.

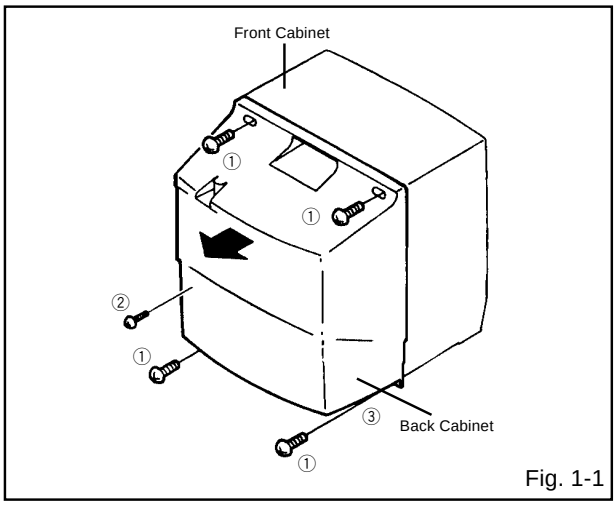


Fig. 1-1

1-2: CRT PCB (Refer to Fig. 1-2)

CAUTION: BEFORE REMOVING THE ANODE CAP, DISCHARGE ELECTRICITY BECAUSE IT CONTAINS HIGH VOLTAGE. BEFORE ATTEMPTING TO REMOVE OR REPAIR ANY PCB, UNPLUG THE POWER CORD FROM THE AC SOURCE.

1. Remove the Anode Cap.
   (Refer to REMOVAL OF ANODE CAP)
2. Disconnect the following connectors:
   (CP801 and CP851B).
3. Remove the CRT PCB in the direction of arrow.

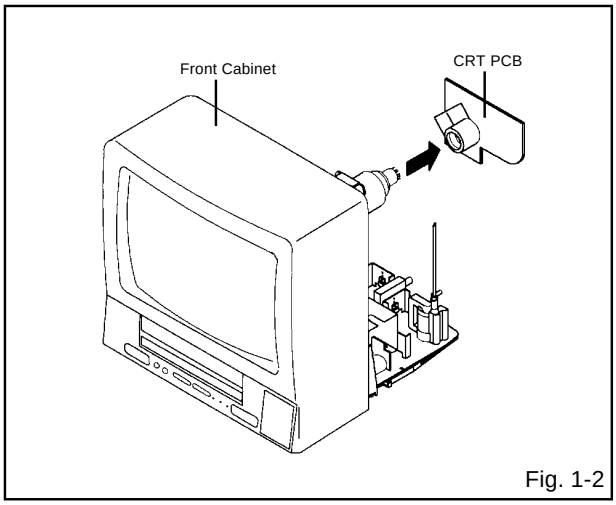


Fig. 1-2

1-3: TV/VCR BLOCK (Refer to Fig. 1-3)

1. Remove the 2 screws ①.
2. Disconnect the following connectors:
   (CP757, CP353, CP401 and CP502).
3. Unlock the support ②.
4. Remove the TV/VCR Block in the direction of arrow.

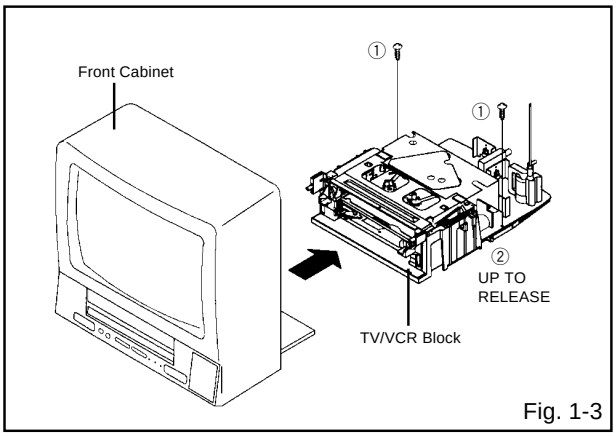


Fig. 1-3

1-4: DECK CHASSIS AND SYSCON PCB (Refer to Fig. 1-4)

1. Remove the 3 screws ①.
2. Remove the 3 screws ②.
3. Remove the screw ③.
4. Disconnect the following connectors:
   (CP1004, CP1005, CP1006, CP4001, CP4002 and CP4003).
5. Remove the Deck Chassis and Deck Shield Plate in the direction of arrow (A).
6. Remove the screw ④.
7. Remove the Syscon PCB in the direction of arrow (B).

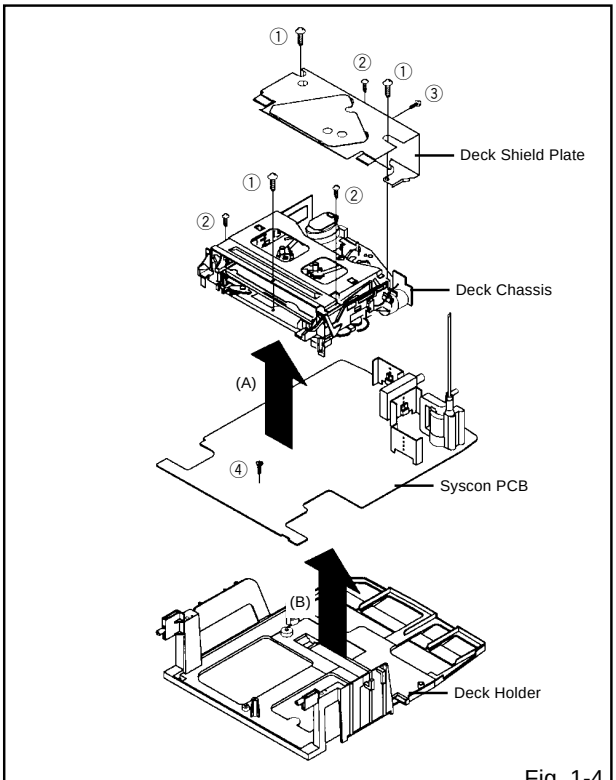


Fig. 1-4

DISASSEMBLY INSTRUCTIONS

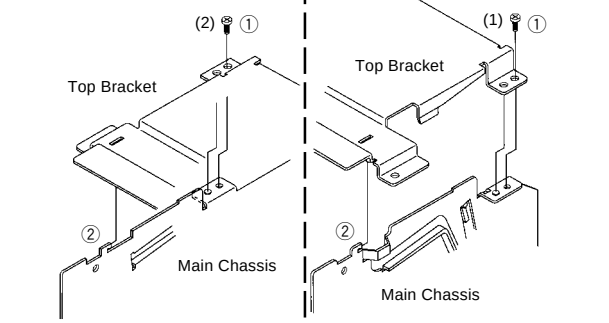
2. REMOVAL OF DECK PARTS

2-1: TOP BRACKET (Refer to Fig. 2-1)

1. Remove the 2 screws ①.
2. Slide the 2 supports ② and remove the Top Bracket.

NOTE

When you install the Top Bracket, install the screw (1) first, then install the screw (2).



• Screw Torque: 5 ± 0.5kgf•cm

Fig. 2-1

2-2: FLAP LEVER/TAPE GUIDE R (Refer to Fig. 2-2)

1. Move the Cassette Holder Ass'y to the back side.
2. Remove the Polyslider Washer ①.
3. Remove the Flap Lever.
4. Unlock the 3 supports ② and remove the Tape Guide R.

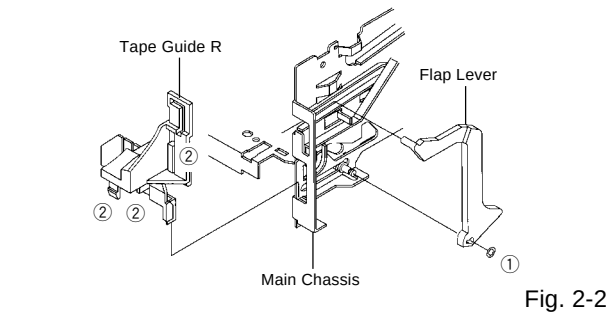
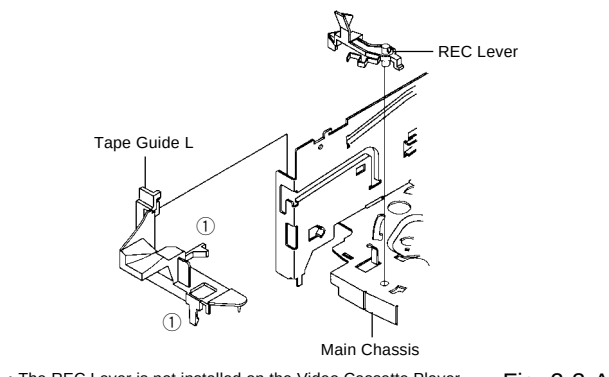


Fig. 2-2

2-3: TAPE GUIDE L (Refer to Fig. 2-3-A)

1. Move the Cassette Holder Ass'y to the back side.
2. Unlock the 2 supports ① and remove the Tape Guide L.
3. Remove the REC Lever. (Recorder only)

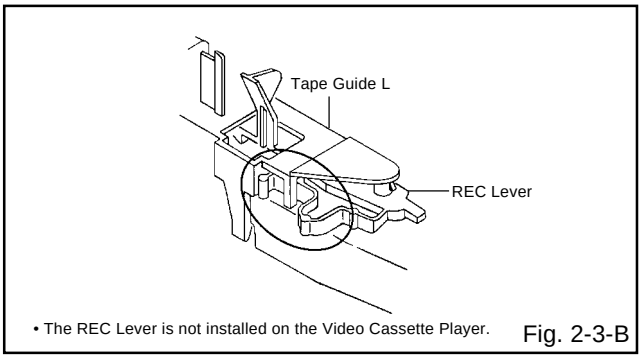


• The REC Lever is not installed on the Video Cassette Player.

Fig. 2-3-A

NOTE

When you install the Tape Guide L, install as shown in the circle of Fig. 2-3-B. **(Refer to Fig. 2-3-B)**



• The REC Lever is not installed on the Video Cassette Player.

Fig. 2-3-B

2-4: CASSETTE HOLDER ASS'Y (Refer to Fig. 2-4)

1. Move the Cassette Holder Ass'y to the front side so that the Link Ass'y doesn't slip out.
2. Push the Locker R to remove the Cassette Side R.
3. Remove the Cassette Side L.

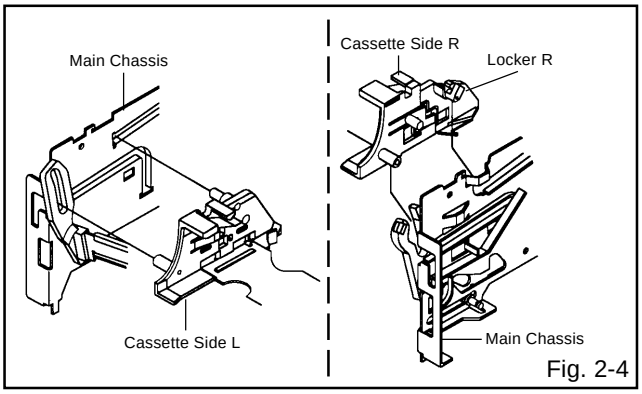


Fig. 2-4

2-5: CASSETTE SIDE L/R (Refer to Fig. 2-5)

1. Unlock the 4 supports ① and then remove the Cassette Side L/R.
2. Remove the Cassette Earth Spring.

NOTE

1. When you install the Cassette Side R, be sure to move the Locker R after installing.
2. After the installation of the Cassette Holder, then install the Cassette Earth Spring.

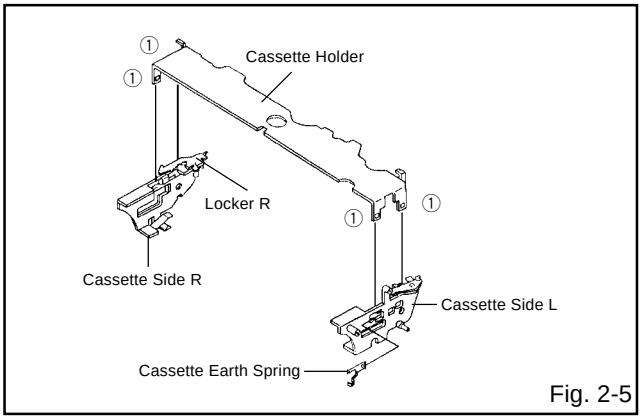


Fig. 2-5

DISASSEMBLY INSTRUCTIONS

2-6: LINK UNIT (Refer to Fig. 2-6)

1. Set the Link Unit to the Eject position.
2. Remove the (A) side of the Link Unit first, then remove the (B) side.

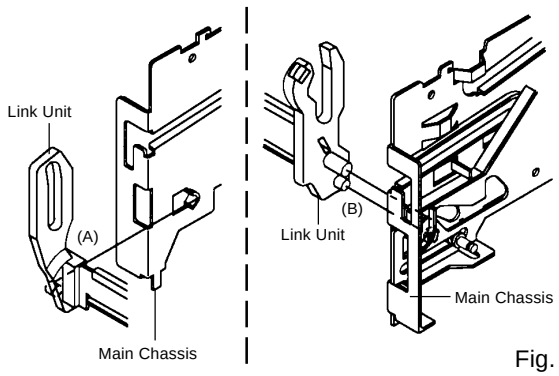


Fig. 2-6

2-7: LOADING MOTOR ASS'Y (Refer to Fig. 2-7)

1. Remove the Link Lever.
2. Remove the screw ①.
3. Remove the Loading Motor Ass'y.
4. Unlock the 2 supports ② and remove the Deck PCB (BOT).

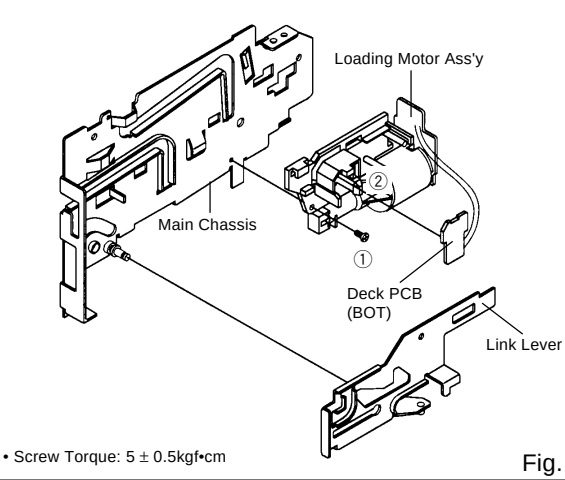


Fig. 2-7

2-8: SENSOR COVER L3 (Refer to Fig. 2-8)

1. Unlock the support ① and remove the Sensor Cover L3.

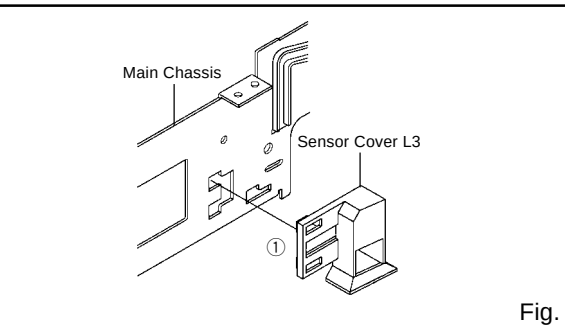


Fig. 2-8

2-9: TENSION ASS'Y (Refer to Fig. 2-9-B)

1. Turn the Middle Gear clockwise so that the Tension Holder hook, is set to the position of Fig. 2-9-A to more the Tension Arm Ass'y.
2. Remove the Tension Spring.
3. Unlock the support ① and remove the Tension Arm Ass'y.
4. Remove the Tension Adjust.
5. Unlock the 2 supports ② and remove the Tension Band Ass'y.
6. Float the hook ③ and turn it clockwise then remove the Tension Holder.
7. Remove the SS Brake Spring.
8. Remove the SS Arm Brake.

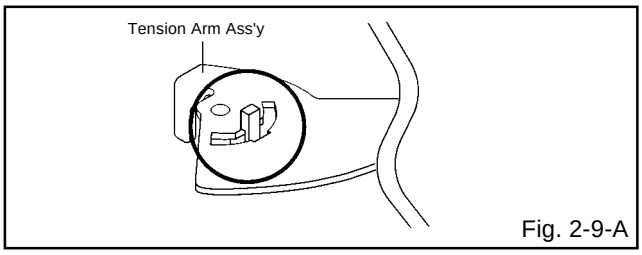


Fig. 2-9-A

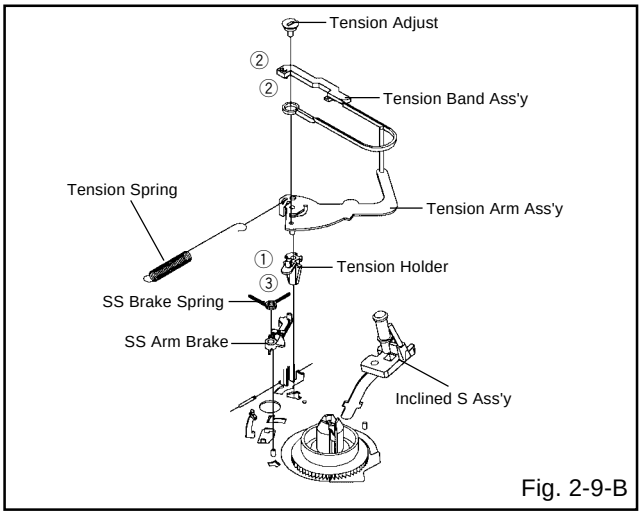


Fig. 2-9-B

NOTE

When you install the Tension Adjust, install as shown in Fig. 2-9-C. **(Refer to Fig. 2-9-C)**

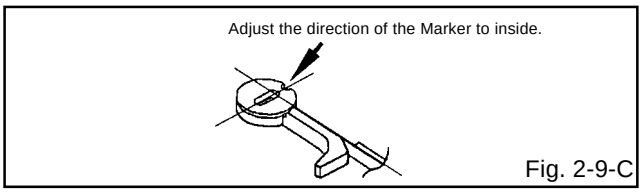


Fig. 2-9-C

DISASSEMBLY INSTRUCTIONS

2-10: T BRAKE ASS'Y (Refer to Fig. 2-10)

1. Remove the T Brake Spring.
2. Turn the T Brake Ass'y clockwise and bend the hook section to remove it.

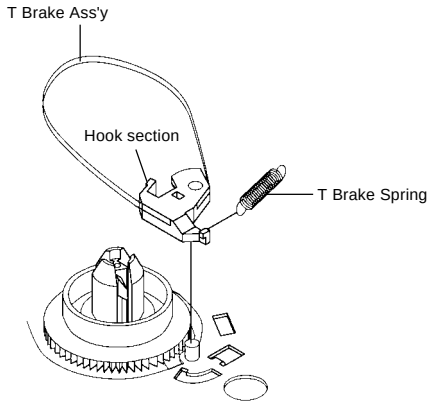


Fig. 2-10

2-11: S REEL/T REEL (Refer to Fig. 2-11)

1. Remove the S Reel and T Reel.
2. Remove the 2 Polyslider Washers ①.

NOTE

1. Take care not to damage the gears of the S Reel and T Reel.
2. The Polyslider Washer may be remained on the back of the reel.
3. Take care not to damage the shaft.
4. Do not touch the section "A" of S Reel and T Reel. (Use gloves.) **(Refer to Fig. 2-11)** Do not adhere the stains on it.
5. When you install the reel, clean the shaft and oil it (FL OIL #6115). (If you do not oil, noise may be heard in FF/REW mode.)
6. After installing the reel, adjust the height of the reel. **(Refer to MECHANICAL ADJUSTMENT)**

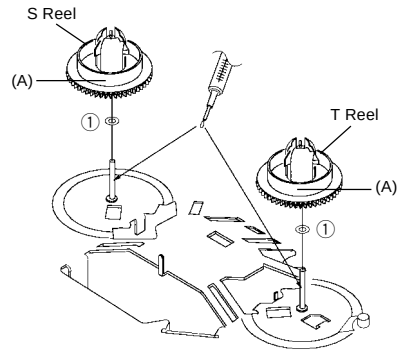


Fig. 2-11

2-12: PINCH ROLLER BLOCK/P5-3 ARM ASS'Y (Refer to Fig. 2-12-A)

1. Remove the P5 Spring.
2. Remove the screw ①.
3. Unlock the 2 supports ② and remove the Cassette Opener.
4. Remove the Pinch Roller Block, Pinch Roller Arm Spring, Pinch Roller Lever Ass'y and P5-3 Arm Ass'y.

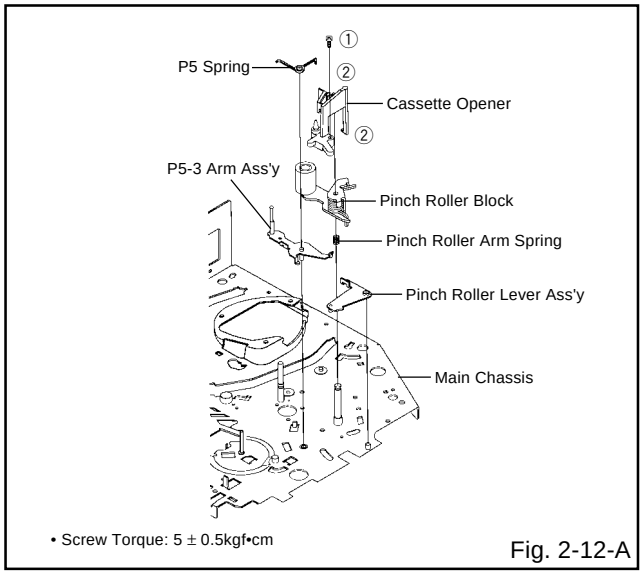


Fig. 2-12-A

NOTE

1. Do not touch the Pinch Roller. (Use gloves.)
2. When you install the Pinch Roller Block, install as shown in the circle of Fig. 2-12-B. **(Refer to Fig. 2-12-B)**

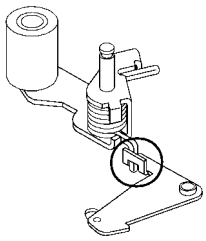


Fig. 2-12-B

2-13: A/C HEAD (Refer to Fig. 2-13-A)

1. Remove the screw ①.
2. Remove the A/C Head Base.
3. Remove the 3 screws ②.
4. Remove the A/C Head and A/C Head Spring.

NOTE

1. Do not touch the A/C Head. (Use gloves.)
2. When you install the A/C Head Spring, install as shown in Fig. 2-13-B. **(Refer to Fig. 2-13-B)**
3. When you install the A/C Head, tighten the screw (1) first, then tighten the screw (2), finally tighten the screw (3).

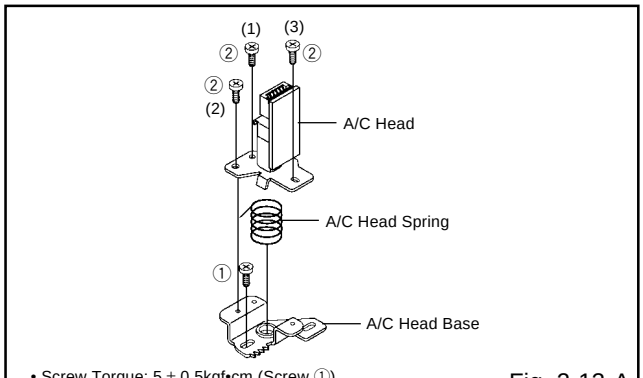


Fig. 2-13-A

DISASSEMBLY INSTRUCTIONS

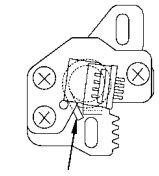
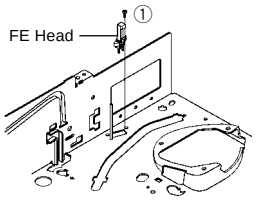


Fig. 2-13-B

2-14: FE HEAD (RECORDER ONLY) (Refer to Fig. 2-14)

1. Remove the screw ①.
2. Remove the FE Head.



• The FE Head is not installed on the Video Cassette Player.
• Screw Torque: 4 ± 0.5kgf•cm

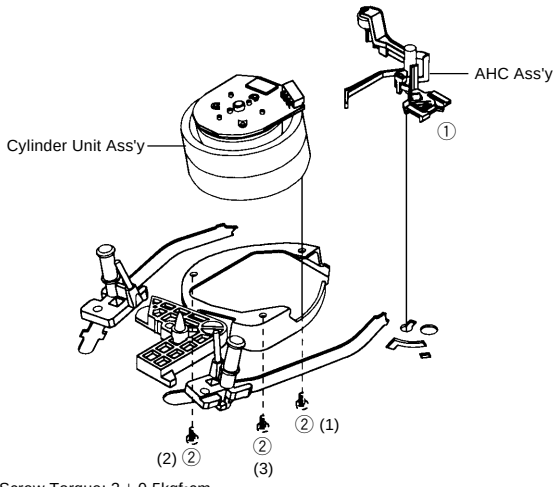
Fig. 2-14

2-15: AHC ASS'Y/CYLINDER UNIT ASS'Y (Refer to Fig. 2-15)

1. Unlock the support ① and remove the AHC Ass'y.
2. Remove the 3 screws ②.
3. Remove the Cylinder Unit Ass'y.

NOTE

When you install the Cylinder Unit Ass'y, tighten the screws from (1) to (3) in order while pulling the Ass'y toward the left front direction.

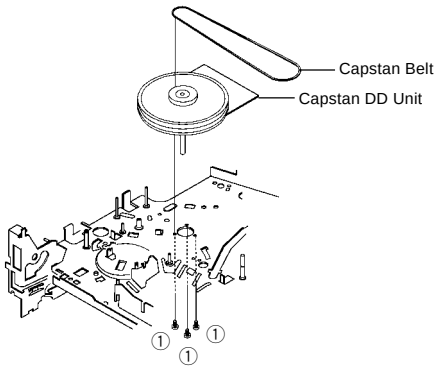


• Screw Torque: 3 ± 0.5kgf•cm

Fig. 2-15

2-16: CAPSTAN DD UNIT (Refer to Fig. 2-16)

1. Remove the Capstan Belt.
2. Remove the 3 screws ①.
3. Remove the Capstan DD Unit.



• Screw Torque: 5 ± 0.5kgf•cm

Fig. 2-16

2-17: MIDDLE GEAR/MAIN CAM (Refer to Fig. 2-17-A)

1. Remove the Polyslider Washer ①, then remove the Middle Gear.
2. Remove the E-Ring, then remove the Main Cam, P5 Cam, Pinch Roller Cam and Joint Gear.

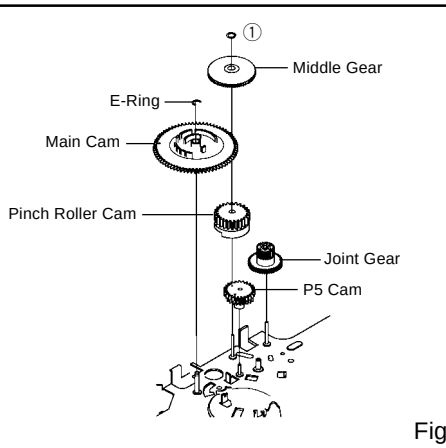


Fig. 2-17-A

NOTE

When you install the Pinch Roller Cam, P5 Cam and Main Cam, align each marker. **(Refer to Fig. 2-17-B)**

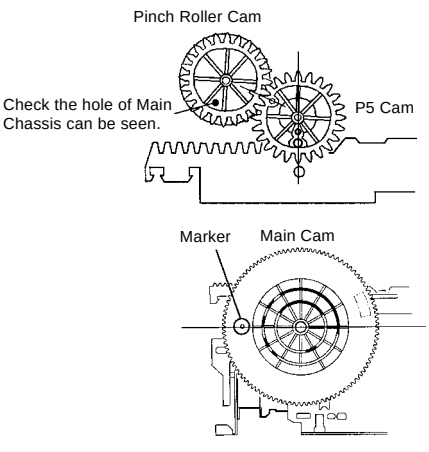


Fig. 2-17-B

DISASSEMBLY INSTRUCTIONS

2-18: CLUTCH ASS'Y (Refer to Fig. 2-18)

1. Remove the Capstan Brake Spring.
2. Remove the Polyslider Washer ①.
3. Remove the Clutch Ass'y, Ring Spring and Coupling Gear.
4. Unlock the 2 supports ② and remove the Clutch Lever.

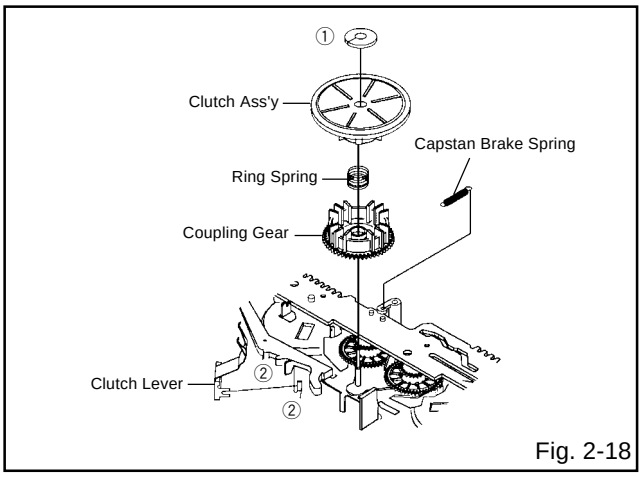


Fig. 2-18

2-19: LOADING GEAR S/T ASS'Y (Refer to Fig. 2-19-A)

1. Remove the E-Ring ① and remove the Main Loading Gear.
2. Slide the Main Rod and remove the Spring Holder.
3. Remove the Main Rod, Tension Lever, Clutch Actuator, Idler Arm Ass'y.
4. Remove the screw ②.
5. Remove the LED Reflecter.
6. Remove the Loading Arm S Ass'y and Loading Arm T Ass'y.
7. Remove the Loading Gear S and Loading Gear T.
8. Remove the Loading Gear Spring.

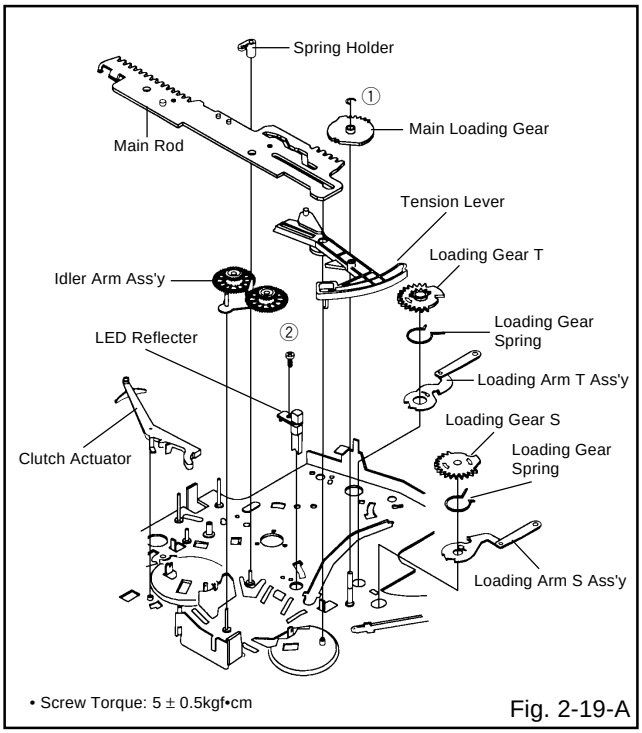


Fig. 2-19-A

NOTES

1. When you install the Loading Arm S Ass'y, Loading Arm T Ass'y and Main Loading Gear, align each marker. **(Refer to Fig. 2-19-B)**

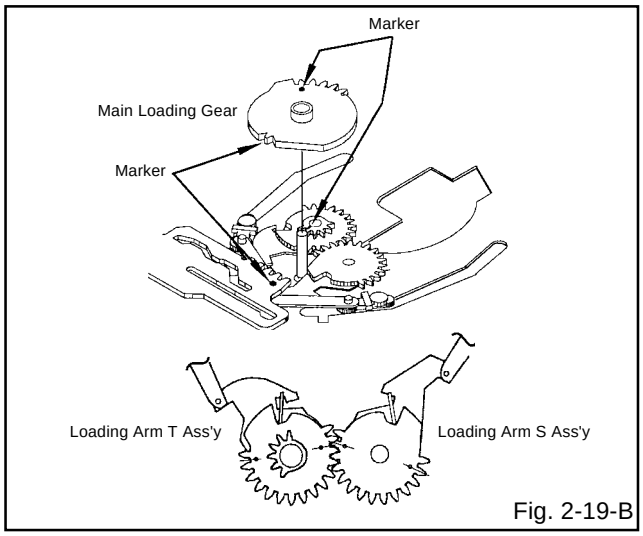


Fig. 2-19-B

2. When you install the Clutch Actuator, install as shown in the circle of Fig. 2-19-C. **(Refer to Fig. 2-19-C)**

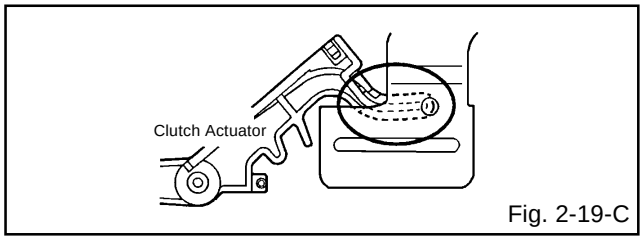


Fig. 2-19-C

2-20: INCLINED S/T ASS'Y (Refer to Fig. 2-20)

1. Remove the Cap P4.
2. Remove the screw ①.
3. Unlock the support ② and remove the Loading Gear Holder.
4. Remove the Inclined S Unit.
5. Remove the Inclined T Unit.

NOTE

Do not touch the roller of Guide Roller.

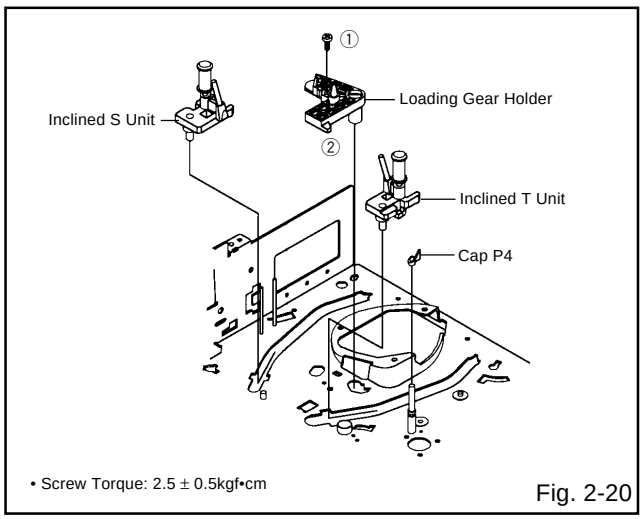


Fig. 2-20

DISASSEMBLY INSTRUCTIONS

3. REMOVAL OF ANODE CAP

Read the following **NOTED** items before starting work.

* After turning the power off there might still be a potential voltage that is very dangerous. When removing the Anode Cap, make sure to discharge the Anode Cap's potential voltage.
* Do not use pliers to loosen or tighten the Anode Cap terminal, this may cause the spring to be damaged.

REMOVAL

1. Follow the steps as follows to discharge the Anode Cap. **(Refer to Fig. 3-1.)**
   Connect one end of an Alligator Clip to the metal part of a flat-blade screwdriver and the other end to ground.
   While holding the plastic part of the insulated Screwdriver, touch the support of the Anode with the tip of the Screwdriver.
   A cracking noise will be heard as the voltage is discharged.

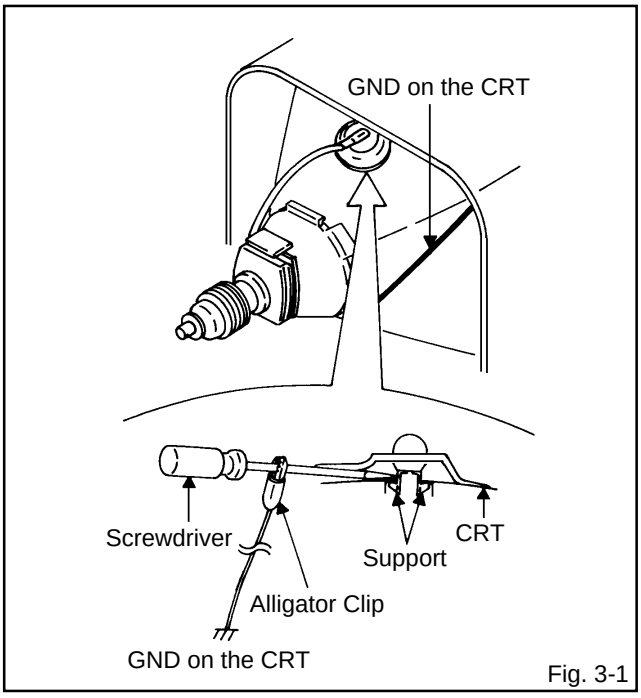


Fig. 3-1

2. Flip up the sides of the Rubber Cap in the direction of the arrow and remove one side of the support. **(Refer to Fig. 3-2.)**

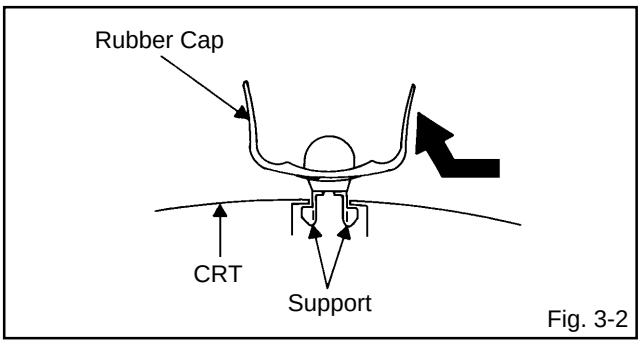


Fig. 3-2

3. After one side is removed, pull in the opposite direction to remove the other.

NOTE

Take care not to damage the Rubber Cap.

INSTALLATION

1. Clean the spot where the cap was located with a small amount of alcohol. **(Refer to Fig. 3-3.)**

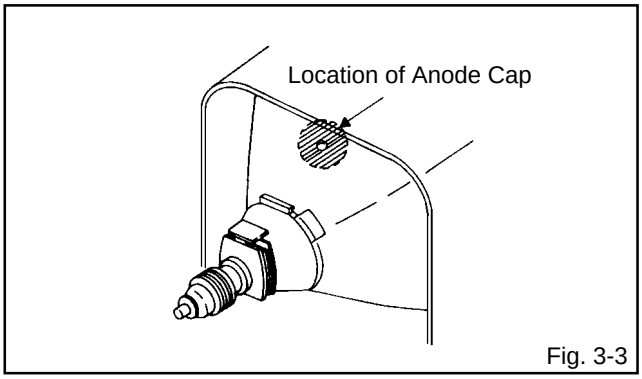


Fig. 3-3

NOTE

Confirm that there is no dirt, dust, etc. at the spot where the cap was located.

2. Arrange the wire of the Anode Cap and make sure the wire is not twisted.
3. Turn over the Rubber Cap. **(Refer to Fig. 3-4.)**

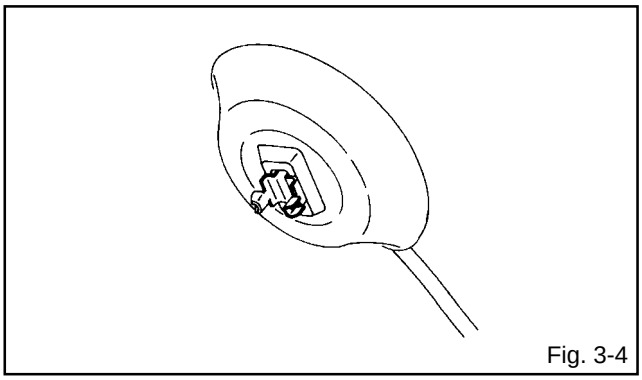


Fig. 3-4

4. Insert one end of the Anode Support into the anode button, then the other as shown in **Fig. 3-5**.

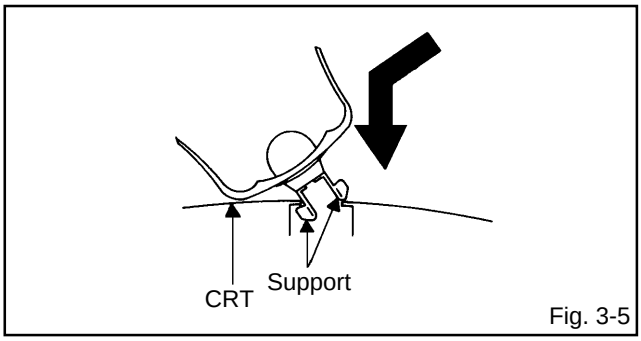


Fig. 3-5

5. Confirm that the Support is securely connected.
6. Put on the Rubber Cap without moving any parts.

KEY TO ABBREVIATIONS

A	A/C	:	Audio/Control
	ACC	:	Automatic Color Control
	AE	:	Audio Erase
	AFC	:	Automatic Frequency Control
	AFT	:	Automatic Fine Tuning
	AFT DET	:	Automatic Fine Tuning Detect
	AGC	:	Automatic Gain Control
	AMP	:	Amplifier
	ANT	:	Antenna
	A.PB	:	Audio Playback
	APC	:	Automatic Phase Control
	ASS'Y	:	Assembly
	AT	:	All Time
	AUTO	:	Automatic
	A/V	:	Audio/Video
B	BGP	:	Burst Gate Pulse
	BOT	:	Beginning of Tape
	BPF	:	Bandpass Filter
	BRAKE SOL	:	Brake Solenoid
	BUFF	:	Buffer
	B/W	:	Black and White
C	C	:	Capacitance, Collector
	CASE	:	Cassette
	CAP	:	Capstan
	CARR	:	Carrier
	CH	:	Channel
	CLK	:	Clock
	CLOCK (SY-SE)	:	Clock (Syscon to Servo)
	COMB	:	Combination, Comb Filter
	CONV	:	Converter
	CPM	:	Capstan Motor
	CTL	:	Control
	CYL	:	Cylinder
	CYL-M	:	Cylinder-Motor
	CYL SENS	:	Cylinder-Sensor
D	DATA (SY-CE)	:	Data (Syscon to Servo)
	dB	:	Decibel
	DC	:	Direct Current
	DD Unit	:	Direct Drive Motor Unit
	DEMOD	:	Demodulator
	DET	:	Detector
	DEV	:	Deviation
E	E	:	Emitter
	EF	:	Emitter Follower
	EMPH	:	Emphasis
	ENC	:	Encoder
	ENV	:	Envelope
	EOT	:	End of Tape
	EQ	:	Equalizer
	EXT	:	External
F	F	:	Fuse
	FBC	:	Feed Back Clamp
	FE	:	Full Erase
	FF	:	Fast Forward, Flipflop
	FG	:	Frequency Generator
	FL SW	:	Front Loading Switch
	FM	:	Frequency Modulation
	FSC	:	Frequency Sub Carrier
	FWD	:	Forward
G	GEN	:	Generator
	GND	:	Ground
H	H.P.F	:	High Pass Filter
	H.SW	:	Head Switch
	Hz	:	Hertz
I	IC	:	Integrated Circuit
	IF	:	Intermediate Frequency
	IND	:	Indicator
	INV	:	Inverter
K	KIL	:	Killer
L	L	:	Left
	LED	:	Light Emitting Diode
	LIMIT AMP	:	Limiter Amplifier
	LM, LDM	:	Loading Motor
	LP	:	Long Play
	L.P.F	:	Low Pass Filter
	LUMI.	:	Luminance
M	M	:	Motor
	MAX	:	Maximum
	MINI	:	Minimum
	MIX	:	Mixer, mixing
	MM	:	Monostable Multivibrator
	MOD	:	Modulator, Modulation
	MPX	:	Multiplexer, Multiplex
	MS SW	:	Mecha State Switch
N	NC	:	Non Connection
	NR	:	Noise Reduction
O	OSC	:	Oscillator
	OPE	:	Operation
P	PB	:	Playback
	PB CTL	:	Playback Control
	PB-C	:	Playback-Chrominance
	PB-Y	:	Playback-Luminance
	PCB	:	Printed Circuit Board
	P. CON	:	Power Control
	PD	:	Phase Detector
	PG	:	Pulse Generator
	P-P	:	Peak-to Peak
R	R	:	Right
	REC	:	Recording
	REC-C	:	Recording-Chrominance
	REC-Y	:	Recording-Luminance
	REEL BRK	:	Reel Brake
	REEL S	:	Reel Sensor
	REF	:	Reference
	REG	:	Regulated, Regulator
	REW	:	Rewind
	REV, RVS	:	Reverse
	RF	:	Radio Frequency
	RMC	:	Remote Control
	RY	:	Relay
S	S. CLK	:	Serial Clock
	S. COM	:	Sensor Common
	S. DATA	:	Serial Data
	SEG	:	Segment
	SEL	:	Select, Selector
	SENS	:	Sensor
	SER	:	Search Mode
	SI	:	Serial Input
	SIF	:	Sound Intermediate Frequency
	SO	:	Serial Output
	SOL	:	Solenoid
	SP	:	Standard Play
	STB	:	Serial Strobe
	SW	:	Switch

KEY TO ABBREVIATIONS

S	**SYNC**	:	Synchronization
	SYNC SEP	:	Sync Separator, Separation
T	**TR**	:	Transistor
	TRAC	:	Tracking
	TRICK PB	:	Trick Playback
	TP	:	Test Point
U	**UNREG**	:	Unregulated
V	**V**	:	Volt
	VCO	:	Voltage Controlled Oscillator
	VIF	:	Video Intermediate Frequency
	VP	:	Vertical Pulse, Voltage Display
	V.PB	:	Video Playback
	VR	:	Variable Resistor
	V.REC	:	Video Recording
	VSF	:	Visual Search Fast Forward
	VSR	:	Visual Search Rewind
	VSS	:	Voltage Super Source
	V-SYNC	:	Vertical-Synchronization
	VT	:	Voltage Tuning
X	**X'TAL**	:	Crystal
Y	**Y/C**	:	Luminance/Chrominance

SERVICE MODE LIST

This unit provided with the following SERVICE MODES so you can repair, examine and adjust easily.

To enter SERVICE MODE, unplug AC cord till lost actual clock time. Then press and hold Vol (-) button of main unit and remocon key simultaneously.

The both pressing of set key and remote control key will not be possible if clock has been set. To reset clock, either unplug AC cord and allow at least 5 seconds before Power On.

Set Key	Remocon Key	Operations
VOL. (-) MIN	0	Releasing of V-CHIP PASSWORD.
VOL. (-) MIN	1	Initialization of the factory. NOTE: Do not use this for the normal servicing.
VOL. (-) MIN	2	Horizontal position adjustment of OSD. NOTE: Also can be adjusted by using the Adjustment MENU. Refer to the "ELECTRICAL ADJUSTMENT" (OSD HORIZONTAL).
VOL. (-) MIN	3	Adjust the PG SHIFTER automatically. Refer to the "ELECTRICAL ADJUSTMENT" (PG SHIFTER).
VOL. (-) MIN	4	Adjust the PG SHIFTER manually. Refer to the "ELECTRICAL ADJUSTMENT" (PG SHIFTER).
VOL. (-) MIN	5	Adjusting of the Tracking to the center position. NOTE: Also can be adjusted by pressing the ATR button for more than 2 seconds during PLAY.
VOL. (-) MIN	6	POWER ON total hours and PLAY/REC total hours are displayed on the screen. Refer to the "PREVENTIVE CHECKS AND SERVICE INTERVALS" (CONFIRMATION OF USING HOURS). Can be checked of the INITIAL DATA of MEMORY IC. Refer to the "NOTE FOR THE REPLACING OF MEMORY IC".
VOL. (-) MIN	8	Writing of EEPROM initial data. NOTE: Do not use this for the normal servicing.
VOL. (-) MIN	9	Display of the Adjustment MENU on the screen. Refer to the "ELECTRICAL ADJUSTMENT" (On-Screen Display Adjustment).

Method	Operations
Press the ATR button on the remote control for more than 2 seconds during PLAY.	Adjusting of the Tracking to the center position. Refer to the "MECHANICAL ADJUSTMENT" (GUIDE ROLLER) and "ELECTRICAL ADJUSTMENT" (PG SHIFTER).
Make the short circuit between the test point of SERVICE and the GND.	The EOT/BOT/Reel sensor do not work at this moment. Refer to the "PREPARATION FOR SERVICING"

PREVENTIVE CHECKS AND SERVICE INTERVALS

The following standard table depends on environmental conditions and usage. Unless maintenance is properly carried out, the following service intervals may be quite shortened as harmful effects may be had on other parts. Also, long term storage or misuse may cause transformation and aging of rubber parts.

Time / Parts Name	500 hours	1,000 hours	1,500 hours	2,000 hours	3,000 hours	Notes
Audio Control Head	■	■	■	■	■	Clean those parts in contact with the tape.
Full Erase Head (Recorder only)	■	■	■	■	■	
Capstan Belt			■	■	●	Clean the rubber, and parts which the rubber touches.
Pinch Roller	■	■	■	■	■ ●	
Capstan DD Unit					●	
Loading Motor					●	
Tension Band					●	
Capstan Shaft	■	■	■	■	■	
Tape Running Guide Post	■	■	■	■	■	Replace when rolling becomes abnormal.
Cylinder Unit	■	■	■	■	●	Clean the Head

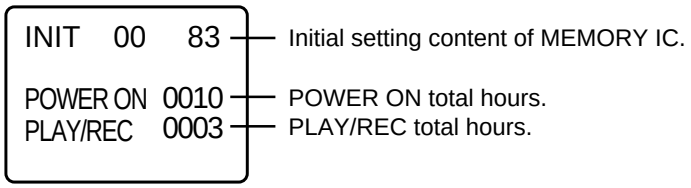
■ : Clean
● : Replace

CONFIRMATION OF USING HOURS

POWER ON total hours and PLAY/REC total hours can be checked on the screen.
Total hours are displayed in 16 system of notation.

NOTE: The confirmation of using hours will not be possible if clock has been set. To reset clock, either unplug AC cord and allow at least 5 seconds before Power On.

1. Set the VOLUME to minimum.
2. While holding down VOLUME button on front cabinet, press key 6 on remote control simultaneously.
3. After the confirmation of using hours, turn off the power.



(16 x 16 x 16 x thousands digit value) + (16 x 16 x hundreds digit value) + (16 x tens digit value) + (ones digit value)

PREVENTIVE CHECKS AND SERVICE INTERVALS

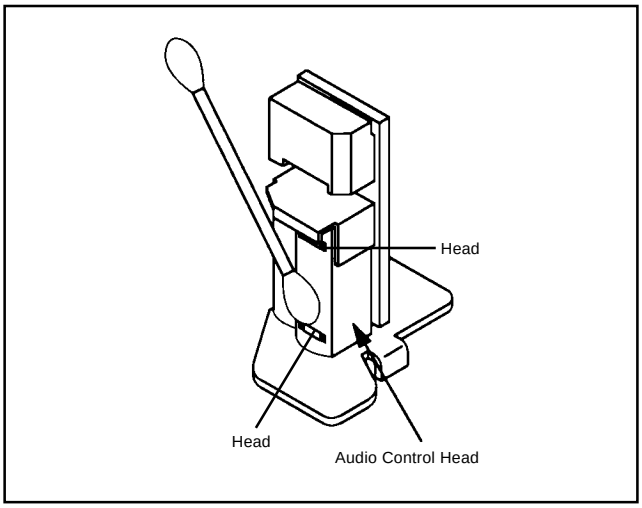
CLEANING

NOTE

After cleaning the heads with isopropyl alcohol, do not run a tape until the heads dry completely. If the heads are not completely dry and alcohol gets on the tape, damage may occur.

1. AUDIO CONTROL HEAD

Clean the Audio Control Head with the cotton stick soaked by alcohol. Clean the full erase head in the same manner. **(Refer to the figure below.)**



2. TAPE RUNNING SYSTEM

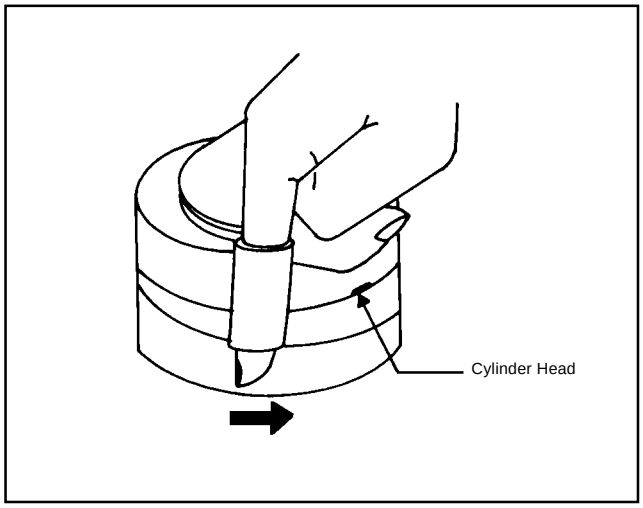
When cleaning the tape transport system, use the gauze moistened with isopropyl alcohol.

3. CYLINDER

Wrap a piece of chamois around your finger. Dip it in isopropyl alcohol. Hold it to the cylinder head softly. Turn the cylinder head counterclockwise to clean it (in the direction of the arrow). **(Refer to the figure below.)**

NOTE

Do not exert force against the cylinder head. Do not move the chamois upward or downward on the head.
Use the chamois one by one.



NOTE FOR THE REPLACING OF MEMORY IC

If a service repair is undertaken where it has been required to change the MEMORY IC, the following steps should be taken to ensure correct data settings while making reference to TABLE 1.

NOTE: Initial Data setting will not be possible if clock has been set. To reset clock, either unplug AC cord and allow at least 5 seconds before Power On.

INI	+0	+1	+2	+3	+4	+5	+6	+7	+8	+9	+A	+B	+C	+D	+E	+F
00	88	1B	C2	63	43	14	34	09	5F	38	38	92	19	4E	26	17
10	B6	9E	95	93	00	00	D0	05	85	00	A9	54	04	42	06	04
20	06	29	01	15	10	60	32	3A	BA	B5	10	15	20	25	26	27
30	28	29	2A	2C	2E	30	32	34	36	38	3A	3C	3E	40	41	42
40	43	44	45	46	47	48	49	4A	4B	4C	4D	4E	4F	50	51	52
50	53	54	55	56	57	58	59	5A	5B	5C	5D	5E	5F	60	61	62
60	63	64	66	69	6D	74	79	7C	7E	7F	---	---	---	---	---	---

Table 1

1. Enter DATA SET mode by setting VOLUME to minimum.
2. While holding down VOLUME button on front cabinet, press key 6 on remote control simultaneously. ADDRESS and DATA should appear as FIG 1.

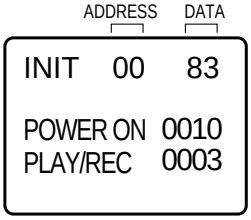


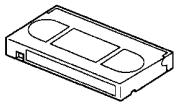
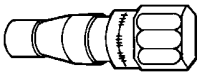
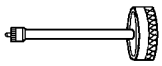
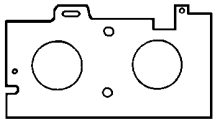
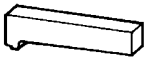
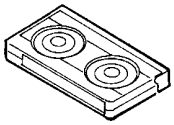
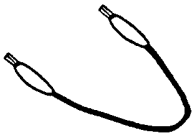
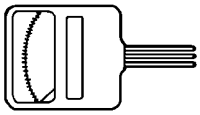
Fig. 1

3. ADDRESS is now selected and should "blink". Using the SET + or - keys on the remote, step through the ADDRESS until required ADDRESS to be changed is reached.
4. Press ENTER to select DATA. When DATA is selected, it will "blink".
5. Again, step through the DATA using SET + or - until required DATA value has been selected.
6. Pressing ENTER will take you back to ADDRESS for further selection if necessary.
7. Repeat steps 3 to 6 until all data has been checked.
8. When satisfied correct DATA has been entered, turn POWER off (return to STANDBY MODE) to finish DATA input.

The unit will now have the correct DATA for the new MEMORY IC.

SERVICE ADJUSTMENT

SERVICING FIXTURES AND TOOLS

(For 4 heads model) VHS Alignment Tape MHP 	Torque Gauge 	PTU94002 Roller Driver 	X-JG153 X Value Adjustment Screwdriver 
Master Plane 	Reel Disk Height Adjustment Jig 	Torque Tape 	Short Jumper 
Tentelometer 			

Part No.	Remarks
MHP	Monoscope (For 4 heads model)
	Color Bar, 1KHz (For 4 heads model)
	Hi-Fi Audio (For 4 heads Hi-Fi model)
MHP	X Value Adjustment
	VSR Torque, Brake Torque (S Reel/T Reel Ass'y)
	Brake Torque (T Reel Ass'y)
	VSR Torque, Brake Torque (S Reel)
PTU94002	Guide Roller Adjustment
X-JG153	X Value Adjustment
	Reel Disk Height Adjustment
	Playback Torque, Back Tension Torque During Playback
Short Jumper	Used to connect the test point of SERVICE and GROUND

PREPARATION FOR SERVICING

How to use the Servicing Fixture

1. Unplug the connector CP757 and CP353, then remove the TV/VCR Block from the set.
2. Remove the Operation PCB from the set, then connect it with the Syscon PCB.
   If necessary, connect CP353. (Front A/V Jack Input Terminal)
3. Short circuit between **TP1001** and **Ground** with the cable JG154.
   (Refer to MAJOR COMPONENTS LOCATION GUIDE)
4. The EOT, BOT and Reel Sensor do not work at this moment.
   At that time, the STOP/EJECT button is available to insert and eject the Cassette Tape.

MECHANICAL ADJUSTMENTS

1. CONFIRMATION AND ADJUSTMENT

Read the following NOTES before starting work.

- Place an object which weighs between 450g~500g on the Cassette Tape to keep it steady when you want to make the tape run without the Cassette Holder. (Do not place an object which weighs over 500g.)
- When you activate the deck without the Cassette Holder, short circuit between **TP1001** and **GND**. **(Refer to ELECTRICAL ADJUSTMENT PARTS LOCATION GUIDE)** In this condition the BOT/EOT/Reel Sensor will not function.

1-1: CONFIRMATION AND ADJUSTMENT OF REEL DISK HEIGHT

1. Turn on the power and set to the STOP mode.
2. Set the master plane and reel disk height adjustment jig on the mechanism framework, taking care not to scratch the drum, as shown in **Fig. 1-1-A**.
3. While turning the reel and confirm the following points. Check if the surface "A" of reel disk is lower than the surface "B" of reel disk height adjustment jig and is higher than the surface "C". If it is not passed, place the height adjustment washers and adjust to 10(+2, -0)mm.
4. Adjust the other reel in the same way.

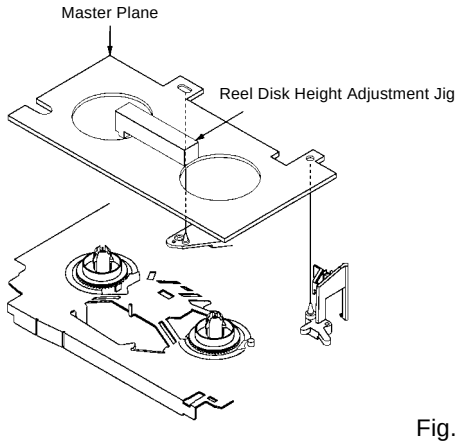


Fig. 1-1-A

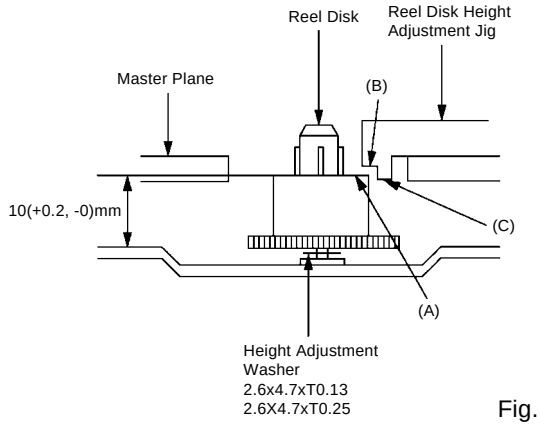


Fig. 1-1-B

1-2: CONFIRMATION AND ADJUSTMENT OF TENSION POST POSITION

1. Set to the PLAY mode.
2. Adjust the Tension Adjust until the edge of the Tension Arm is positioning within 0.5mm range from the standard line center of Main Chassis.
   After this adjustment, confirm that the cut position is located in "A" area as shown in **Fig. 1-2-B**. If it is located in "B" area, adjust again.
3. While turning the S Reel clockwise, confirm that the edge of the Tension Arm is located in the position described above.

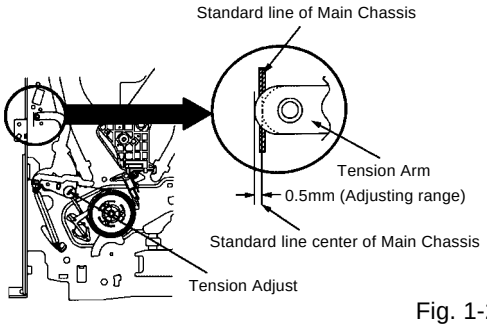


Fig. 1-2-A

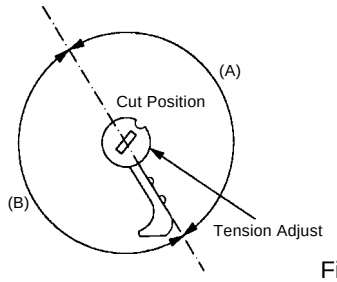


Fig. 1-2-B

1-3: CONFIRMATION OF PLAYBACK TORQUE AND BACK TENSION TORQUE DURING PLAYBACK

1. Load a video tape (T-120) recorded in standard speed mode. Set the unit to the PLAY mode.
2. Install the tentelometer as shown in **Fig. 1-3**. Confirm that the meter indicates 20 ± 2gf in the beginning of playback.

• USING A CASSETTE TYPE TORQUE TAPE

1. After confirmation and adjustment of Tension Post position **(Refer to item 1-2)**, load the cassette type torque tape and set to the PLAY mode.
2. Confirm that the right meter of the torque tape indicates 60~110gf•cm during playback in SP mode.
3. Confirm that the left meter of the torque tape indicates 25~40gf•cm during playback in SP mode.

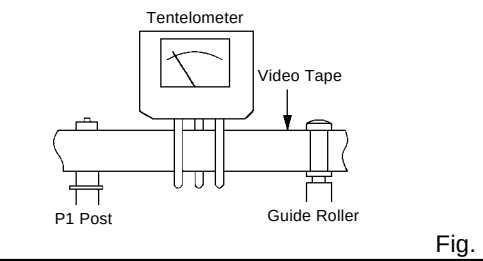


Fig. 1-3

MECHANICAL ADJUSTMENTS

1-4: CONFIRMATION OF VSR TORQUE

1. Install the Torque Gauge on the S Reel. Set to the Picture Search (Rewind) mode. **(Refer to Fig.1-4)**
2. Then, confirm that it indicates 120~180gf•cm.

NOTE

Install the Torque Gauge on the reel disk firmly. Press the REW button to turn the reel disk.

1-5: CONFIRMATION OF REEL BRAKE TORQUE

(S Reel Brake) **(Refer to Fig. 1-4-B)**

1. Once set to the Fast Forward mode then set to the Stop mode. While, unplug the AC cord when the Pinch Roller Block is on the position of **Fig. 1-4-A**.
2. Move the Idler Ass'y from the S Reel.
3. Install the Torque Gauge on the S Reel. Turn the Torque Gauge clockwise.
4. Then, confirm that it indicates 60~100gf•cm.

(T Reel Brake) **(Refer to Fig. 1-4-B)**

1. Once set to the Fast Forward mode then set to the Stop mode. While, unplug the AC cord when the Pinch Roller Block is on the position of **Fig. 1-4-A**.
2. Move the Idler Ass'y from the T Reel.
3. Install the Torque Gauge on the T reel. Turn the Torque Gauge counterclockwise.
4. Then, confirm that it indicates 45~70gf•cm.

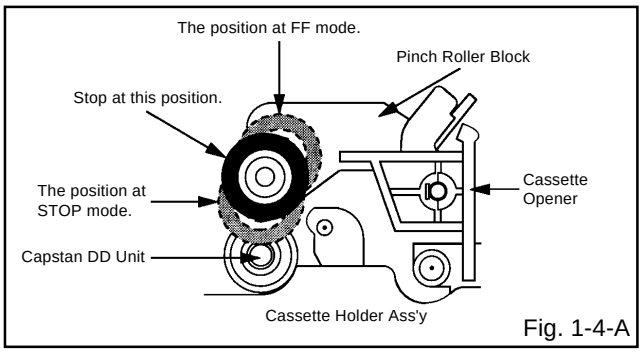


Fig. 1-4-A

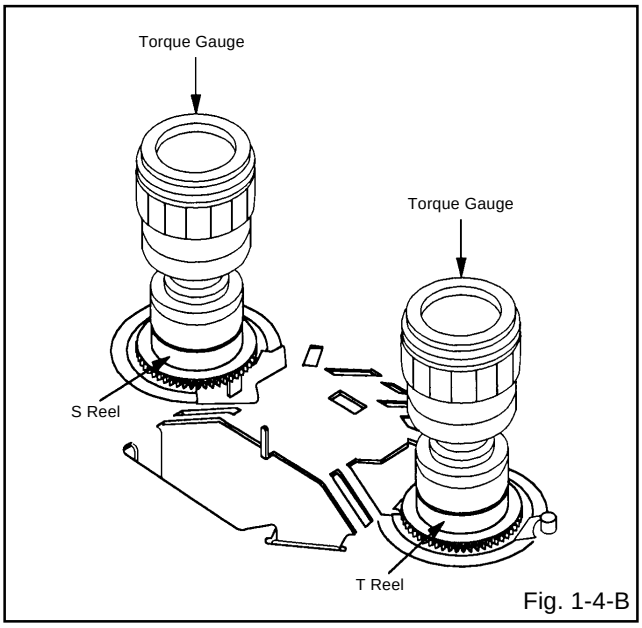


Fig. 1-4-B

NOTE

If the torque is out of the range, replace the following parts.

Check item	Replacement Part
1-4	Idler Ass'y/Clutch Ass'y
1-5	S Reel side: S Reel/Tension Band Ass'y/ Tension Arm Ass'y T Reel side: T Reel/T Brake Spring/T Brake Ass'y

2. CONFIRMATION AND ADJUSTMENT OF TAPE RUNNING MECHANISM

Tape Running Mechanism is adjusted precisely at the factory. Adjustment is not necessary as usual. When you replace the parts of the tape running mechanism because of long term usage or failure, the confirmation and adjustment are necessary.

2-1: GUIDE ROLLER

1. Playback the VHS Alignment Tape **(MHP)**.
2. Connect CH-1 of the oscilloscope to **TP4001 (Envelope)** and CH-2 to **TP1002 (SW Pulse)**.
3. Press and hold the Tracking-Auto button on the remote control more than 2 seconds to set tracking to center.
4. Trigger with SW Pulse and observe the envelope. **(Refer to Fig. 2-1-A)**
5. When observing the envelope, adjust the Roller Driver (PTU94002) slightly until the envelope will be flat. Even if you press the Tracking Button, adjust so that flatness is not moved so much.
6. Adjust so that the A : B ratio is better than 3 : 2 as shown in **Fig. 2-1-B**, even if you press the Tracking Button to move the envelope (The envelope waveform will begin to decrease when you press the Tracking Button).
7. Adjust the PG shifter during playback. **(Refer to the ELECTRICAL ADJUSTMENTS)**

NOTE

After adjustment, confirm and adjust A/C head. **(Refer to item 2-2)**

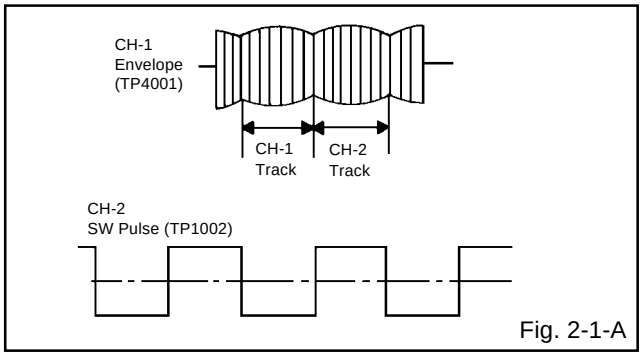


Fig. 2-1-A

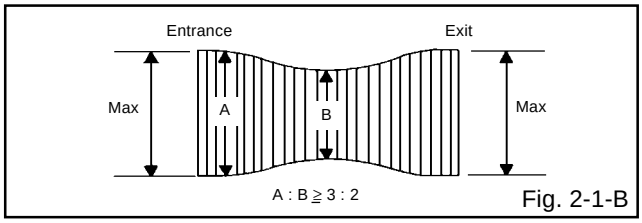


Fig. 2-1-B

MECHANICAL ADJUSTMENTS

2-2: CONFIRMATION AND ADJUSTMENT OF AUDIO/ CONTROL HEAD

When the Tape Running Mechanism does not work well, adjust the following items.

1. Playback the VHS Alignment Tape **(MHP)**.
2. Confirm that the reflected picture of stamp mark is appeared on the tape prior to P4 Post as shown in **Fig. 2-2-A**.
   a) When the reflected picture is distorted, turn the screw ① clockwise until the distortion is disappeared.
   b) When the reflected picture is not distorted, turn the screw ① counterclockwise until little distortion is appeared, then adjust the a).
3. Turn the screw ② to set the audio level to maximum.
4. Confirm that the bottom of the Audio/ Control Head and the bottom of the tape is shown in **Fig. 2-2-C**.
   c) When the height is not correct, turn the screw ③ to adjust the height. Then, adjust the 1~3 again.

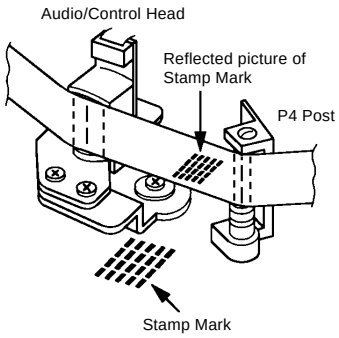


Fig. 2-2-A

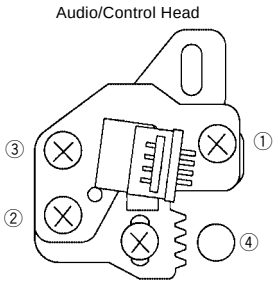


Fig. 2-2-B

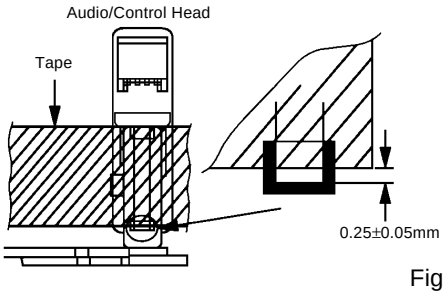


Fig. 2-2-C

2-3: TAPE RUNNING ADJUSTMENT (X VALUE ADJUSTMENT)

1. Confirm and adjust the height of the Reel Disk. **(Refer to item 1-1)**
2. Confirm and adjust the position of the Tension Post. **(Refer to item 1-2)**
3. Adjust the Guide Roller. **(Refer to item 2-1)**
4. Confirm and adjust the Audio/Control Head. **(Refer to item 2-2)**
5. Connect CH-1 of the oscilloscope to **TP4001**, CH-2 to **TP1002** and CH-3 to **HOT side of Audio Out Jack**.
6. Playback the VHS Alignment Tape **(MHP)**.
7. Press and hold the Tracking-Auto button on the remote control more than 2 seconds to set tracking to center.
8. Set the X Value adjustment driver **(X-JG153)** to the ④ of **Fig. 2-2-B**. Adjust X value so that the envelope waveform output becomes maximum. Check if the relation between Audio and Envelope waveform becomes (1) or (2) of **Fig. 2-3**.

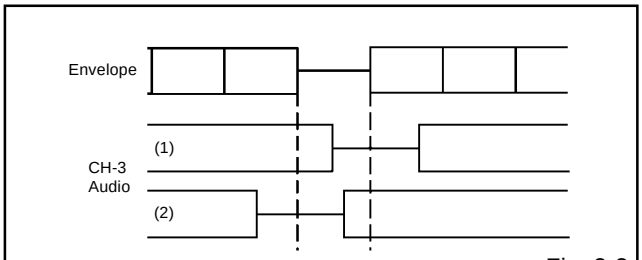


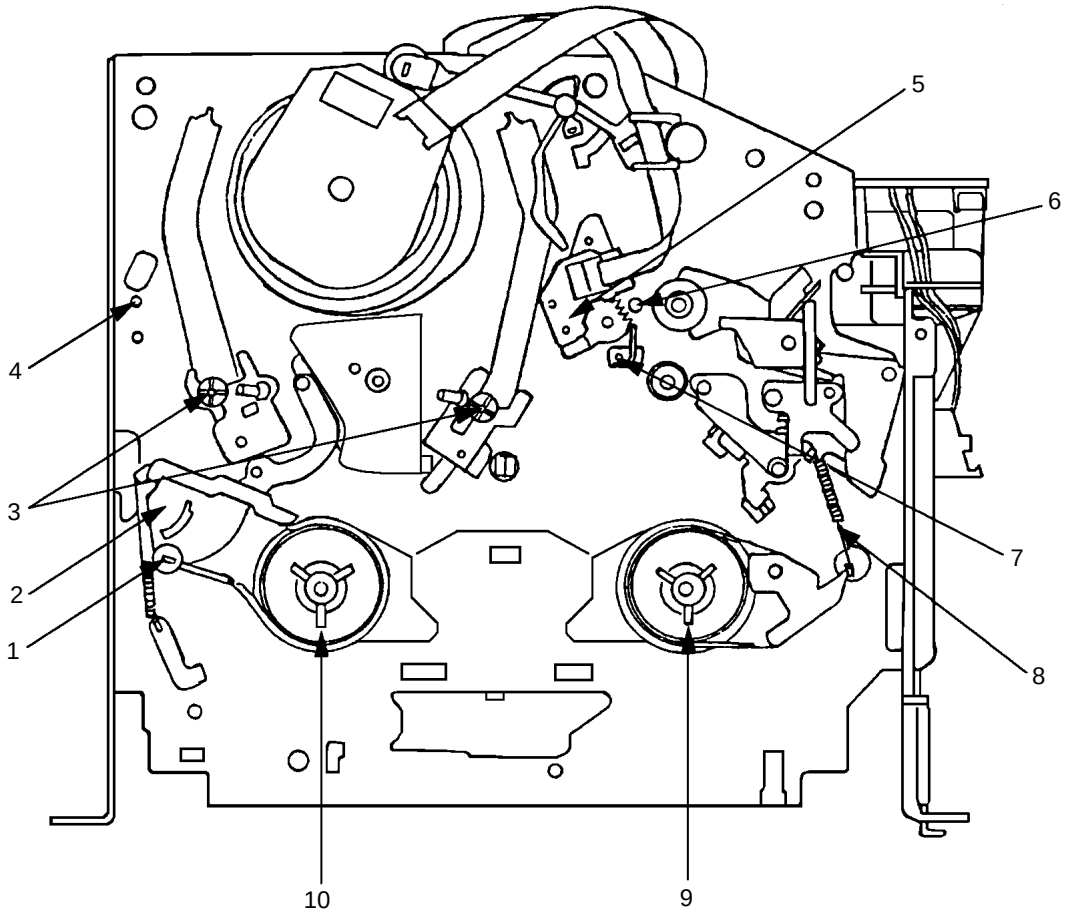
Fig. 2-3

2-4: CONFIRM HI-FI AUDIO (Hi-Fi model only)

1. Connect CH-1 of the oscilloscope to **TP1002** and CH-2 to the **Hi-Fi Audio Out Jack**.
2. Playback the VHS Alignment Tape **(MHP)**.
3. Press and hold the Tracking-Auto button on the remote control more than 2 seconds to set tracking to center.
4. Press the Tracking Up button and count number of steps which the audio output is changed from Hi-Fi (10KHz) to MONO (6KHz).
5. Press and hold the Tracking-Auto button on the remote control more than 2 seconds to set tracking to center.
6. Press the Tracking Down button and count number of steps which the audio output is changed from Hi-Fi (10KHz) to MONO (6KHz).
7. If the difference are more than 3 steps, set the X Value adjustment driver **(X-JG153)** to ④ of **Fig. 2-2-B**. Change the X Value and adjust it so that the value becomes within 2 steps.

MECHANICAL ADJUSTMENTS

3. MECHANISM ADJUSTMENT PARTS LOCATION GUIDE



1. Tension Adjust
2. Tension Arm
3. Guide Roller
4. P1 Post
5. Audio/Control Head
6. X value adjustment driver hole
7. P4 Post
8. T Brake Spring
9. T Reel
10. S Reel

ELECTRICAL ADJUSTMENTS

1. BEFORE MAKING ELECTRICAL ADJUSTMENTS

Read and perform these adjustments when repairing the circuits or replacing electrical parts or PCB assemblies.

CAUTION

- Use an isolation transformer when performing any service on this chassis.
- Before removing the anode cap, discharge electricity because it contains high voltage.
- When removing a PCB or related component, after unfastening or changing a wire, be sure to put the wire back in its original position.
  Inferior silicon grease can damage IC's and transistors.
- When replacing IC's and transistors, use only specified silicon grease (YG6260M).
  Remove all old silicon before applying new silicon.

On-Screen Display Adjustment

1. Unplug the AC plug for more than 5 seconds to set the clock to the non-setting state. Then, set the volume level to minimum.
2. Press the VOL. DOWN button on the set and the Channel button **(9)** on the remote control simultaneously to appear the adjustment mode on the screen as shown in **Fig. 1-1**.

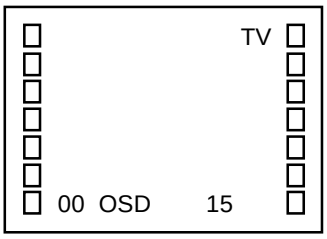


Fig. 1-1

3. Use the Channel UP/DOWN button or Channel button **(0-9)** on the remote control to select the options shown in **Fig. 1-2**.
4. Press the MENU button on the remote control to end the adjustments.

NO.	FUNCTION	NO.	FUNCTION
00	OSD H	13	BRIGHTNESS
01	CUT OFF	14	CONTRAST
02	RF DELAY	15	COLOR
03	VIF VCO	16	TINT
04	H VCO	17	SHARPNESS
05	H PHASE	18	FM LEVEL
06	V SIZE	19	LEVEL
07	V SHIFT	20	SEPARATION 1
08	R DRIVE	21	SEPARATION 2
09	B DRIVE	22	TEST MONO
10	R CUT OFF	23	TEST STEREO
11	G CUT OFF	24	X-RAY TEST
12	B CUT OFF		

Fig. 1-2

2. BASIC ADJUSTMENTS (VCR SECTION)

2-1: PG SHIFTER

1. Connect CH-1 on the oscilloscope to **TP1002** and CH-2 to **pin 4 of CP1003**.
2. Playback the alignment tape.
3. Press and hold the Tracking-Auto button on the remote control more than 2 seconds to set tracking to center.
4. Press the VOL. DOWN button on the set and the channel button **(3)** on the remote control simultaneously until the indicator REC disappears. If the indicator REC disappears, adjustment is completed.

(If the above adjustments doesn't work well:)

5. Press the VOL. DOWN button on the set and the channel button **(3)** on the remote control simultaneously until the indicator REC disappears.
6. When the REC indicator is blinking, press both VOL. DOWN button on the set and the channel button **(4)** on the remote control simultaneously and adjust the Tracking +/- button until the arising to the down of Head Switching Pulse becomes 6.5 ± 0.5H.
   (Refer to Fig. 2-1-A, B)
7. Press the Tracking Auto button.

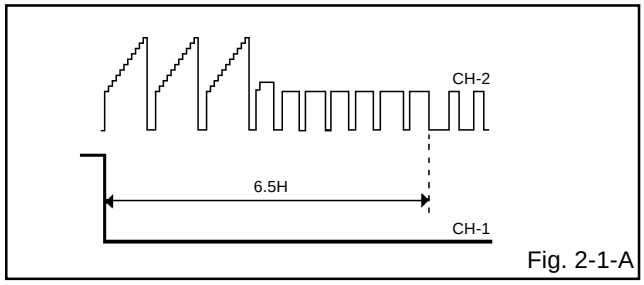


Fig. 2-1-A

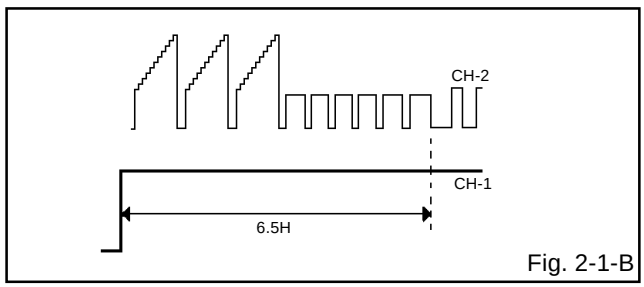


Fig. 2-1-B

2-2: VCO FREERUN

1. Receive the VHF HIGH.
2. Place the set with Aging Test for more than 10 minutes.
3. Connect the digital voltmeter between the **pin 5 of CP351** and the **pin 1 (GND) of CP351**.
4. Activate the adjustment mode display of **Fig. 1-1** and press the channel button **(03)** on the remote control to select "VIF VCO".
5. Press the VOL. UP/DOWN button on the remote control until the digital voltmeter is 2.5V.
6. After the 2.5V adjustment, countdown the VIF VCO step No. by 1 step with the VOL. DOWN button.

ELECTRICAL ADJUSTMENTS

2-3: RF AGC

1. Receive the VHF HIGH (63dB).
2. Connect the digital voltmeter between the **pin 5 of CP351** and the **pin 1 (GND) of CP351**.
3. Activate the adjustment mode display of **Fig. 1-1** and press the channel button **(02)** on the remote control to select "RF DELAY".
4. Press the VOL. UP/DOWN button on the remote control until the digital voltmeter is 2.9 ± 0.1V.

(TV SECTION)

2-4: CONSTANT VOLTAGE

1. Connect the digital voltmeter to the **TP601**.
2. Set condition is AV MODE without signal.
3. Using the remote control, set the brightness and contrast to normal position.
4. Adjust the **VR502** until the digital voltmeter is 135 ± 0.5V.

2-5: CUT OFF

1. Adjust the unit to the following settings.
   R CUT OFF=128, G CUT OFF=128, B CUT OFF=128, BRIGHTNESS=128, CONTRAST=100
2. Place the set with Aging Test for more than 15 minutes.
3. Set condition is AV MODE without signal.
4. Using the remote control, set the brightness and contrast to normal position.
5. Activate the adjustment mode display of **Fig. 1-1** and press the channel button **(01)** on the remote control to select "CUT OFF".
6. Adjust the **Screen Volume** until a dim raster is obtained.

2-6: WHITE BALANCE

NOTE: Adjust after performing CUT OFF adjustment.

1. Place the set with Aging Test for more than 15 minutes.
2. Receive the color bar pattern.
3. Using the remote control, set the brightness and contrast to normal position.
4. Activate the adjustment mode display of **Fig. 1-1** and press the channel button **(10)** on the remote control to select "R CUT OFF".
5. Using the VOL. UP/DOWN button on the remote control, adjust the R CUT OFF.
6. Press the CH. UP/DOWN button on the remote control to select the "R DRIVE", "B DRIVE", "G CUT OFF" or "B CUT OFF".
7. Using the VOL. UP/DOWN button on the remote control, adjust the R DRIVE, B DRIVE, G CUT OFF or B CUT OFF.
8. Perform the above adjustments 6 and 7 until the white color is looked like a white.

2-7: FOCUS

1. Receive the monoscope pattern.
2. Using the remote control, set the brightness and contrast to normal position.
3. Turn the Focus Volume fully counterclockwise once.
4. Adjust the **Focus Volume** until picture is distinct.

2-8: HORIZONTAL PHASE

1. Receive the center cross signal from the Pattern Generator.
2. Using the remote control, set the brightness and contrast to normal position.
3. Activate the adjustment mode display of **Fig. 1-1** and press the channel button **(05)** on the remote control to select "H PHASE".
4. Press the VOL. UP/DOWN button on the remote control until the right and left screen size of the vertical line becomes the same.

2-9: VERTICAL SHIFT

1. Receive the center cross signal from the Pattern Generator.
2. Using the remote control, set the brightness and contrast to normal position.
3. Activate the adjustment mode display of **Fig. 1-1** and press the channel button **(07)** on the remote control to select "V SHIFT".
4. Press the VOL. UP/DOWN button on the remote control until the horizontal line becomes fit to the notch of the shadow mask.

2-10: VERTICAL SIZE

1. Receive the cross hatch signal from the Pattern Generator.
2. Using the remote control, set the brightness and contrast to normal position.
3. Activate the adjustment mode display of **Fig. 1-1** and press the channel button **(06)** on the remote control to select "V SIZE".
4. Press the VOL. UP/DOWN button on the remote control until the rectangle on the center of the screen becomes square.
5. Receive a broadcast and check if the picture is normal.

2-11: SUB BRIGHTNESS

1. Receive the monoscope pattern.
2. Using the remote control, set the brightness and contrast to normal position.
3. Activate the adjustment mode display of **Fig. 1-1** and press the channel button **(13)** on the remote control to select "BRIGHTNESS".
4. Press the VOL. UP/DOWN button on the remote control until the white 10% is starting to be visible
5. Receive the monoscope pattern. (Audio Video Input)
6. Press the INPUT button on the remote control to set to the AV mode. Then perform the above adjustments 2~4.

2-12: SUB CONTRAST

1. Activate the adjustment mode display of **Fig. 1-1** and press the channel button **(14)** on the remote control to select "CONTRAST".
2. Press the VOL. UP/DOWN button on the remote control until the contrast step No. becomes "102"
3. Press the INPUT button on the remote control to set to the AV mode.
4. Activate the adjustment mode display of **Fig. 1-1** and press the channel button **(14)** on the remote control.
5. Press the VOL. UP/DOWN button on the remote control until the contrast step No. becomes "100"

ELECTRICAL ADJUSTMENTS

2-13: SUB TINT

1. Receive the color bar pattern. (RF Input)
2. Connect the synchro scope to **TP801**.
3. Using the remote control, set the brightness, contrast, color and tint to normal position.
4. Activate the adjustment mode display of **Fig. 1-1** and press the channel button **(16)** on the remote control to select "TINT".
5. Press the VOL. UP/DOWN button on the remote control until the waveform becomes as shown in **Fig. 2-2**.
6. Receive the color bar pattern. (Audio Video Input)
7. Press the INPUT button on the remote control to set to the AV mode. Then perform the above adjustments 2~5.

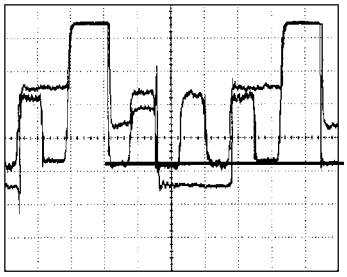


Fig. 2-2

2-14: SUB COLOR

1. Receive the color bar pattern. (RF Input)
2. Connect the synchro scope to **TP803**.
3. Using the remote control, set the brightness, contrast, color and tint to normal position.
4. Activate the adjustment mode display of **Fig. 1-1** and press the channel button **(15)** on the remote control to select "COLOR".
5. Adjust the VOLTS RANGE VARIABLE knob of the oscilloscope until the range between white 100% and 0% is set to 4 scales on the screen of the oscilloscope.
6. Press the VOL. UP/DOWN button on the remote control until the red color level is adjusted to 110% of the white level. **(Refer to Fig. 2-3)**
7. Receive the color bar pattern. (Audio Video Input)
8. Press the INPUT button on the remote control to set to the AV mode. Then perform the above adjustments 2~6.

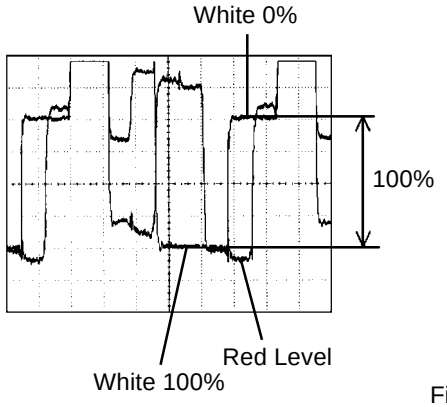


Fig. 2-3

2-15: OSD HORIZONTAL

1. Activate the adjustment mode display of **Fig. 1-1**.
2. Press the VOL. UP/DOWN button on the remote control until the difference of A and B becomes minimum. **(Refer to Fig. 2-4)**

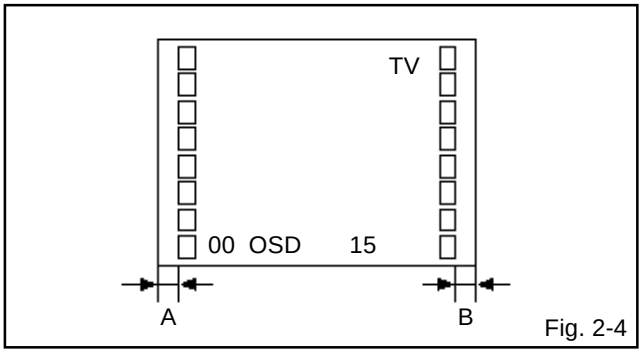
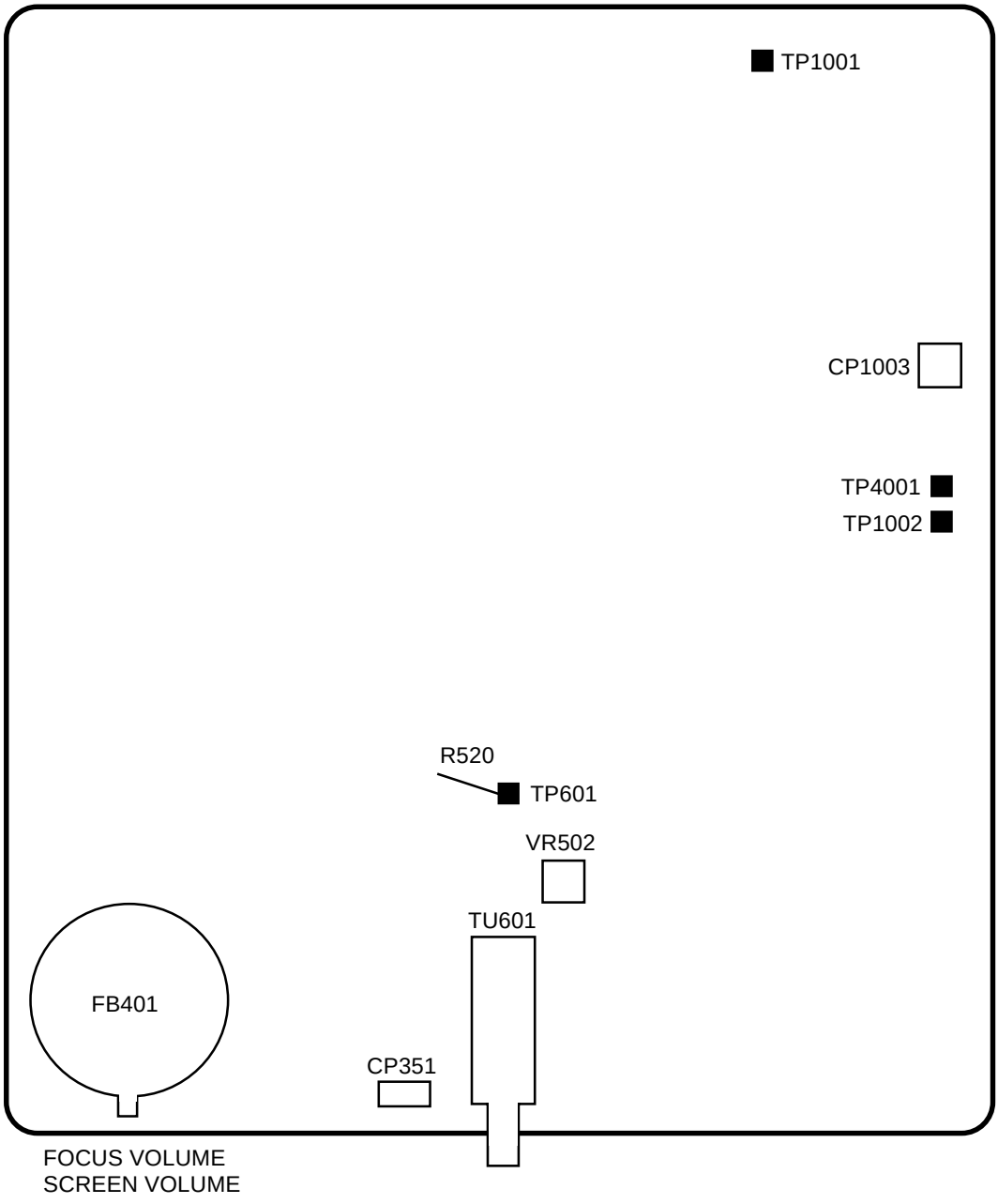


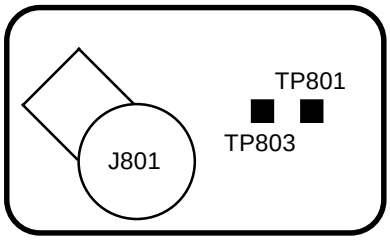
Fig. 2-4

ELECTRICAL ADJUSTMENTS

3. ELECTRICAL ADJUSTMENT PARTS LOCATION GUIDE



SYSCON



CRT

ELECTRICAL ADJUSTMENTS

4. PURITY AND CONVERGENCE ADJUSTMENTS

NOTE

1. Turn the unit on and let it warm up for at least 30 minutes before performing the following adjustments.
2. Place the CRT surface facing east or west to reduce the terrestrial magnetism.
3. Turn ON the unit and demagnetize with a Degauss Coil.

4-1: STATIC CONVERGENCE (ROUGH ADJUSTMENT)

1. Tighten the screw for the magnet. Refer to the adjusted CRT for the position. **(Refer to Fig. 4-1)**
   If the deflection yoke and magnet are in one body, untighten the screw for the body.
2. Receive the green raster pattern from the color bar generator.
3. Slide the deflection yoke until it touches the funnel side of the CRT.
4. Adjust center of screen to green, with red and blue on the sides, using the pair of purity magnets.
5. Switch the color bar generator from the green raster pattern to the crosshatch pattern.
6. Combine red and blue of the 3 color crosshatch pattern on the center of the screen by adjusting the pair of 4 pole magnets.
7. Combine red/blue (magenta) and green by adjusting the pair of 6 pole magnets.
8. Adjust the crosshatch pattern to change to white by repeating steps 6 and 7.

4-2: PURITY

NOTE

Adjust after performing adjustments in section 4-1.

1. Receive the green raster pattern from color bar generator.
2. Adjust the pair of purity magnets to center the color on the screen.
   Adjust the pair of purity magnets so the color at the ends are equally wide.
3. Move the deflection yoke backward (to neck side) slowly, and stop it at the position when the whole screen is green.
4. Confirm red and blue colors.
5. Adjust the slant of the deflection yoke while watching the screen, then tighten the fixing screw.

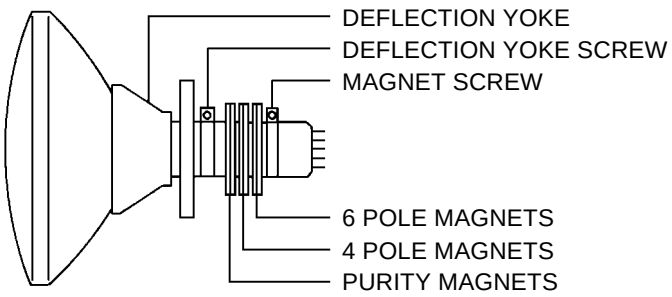


Fig. 4-1

4-3: STATIC CONVERGENCE

NOTE

Adjust after performing adjustments in section 4-2.

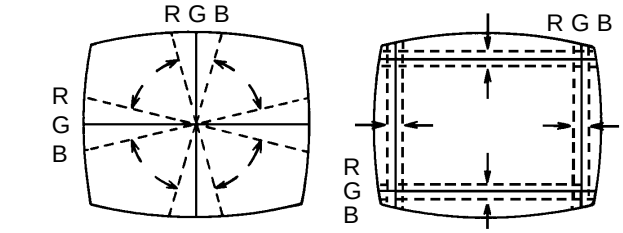
1. Receive the crosshatch pattern from the color bar generator.
2. Combine red and blue of the 3 color crosshatch pattern on the center of the screen by adjusting the pair of 4 pole magnets.
3. Combine red/blue (magenta) and green by adjusting the pair of 6 pole magnets.

4-4: DYNAMIC CONVERGENCE

NOTE

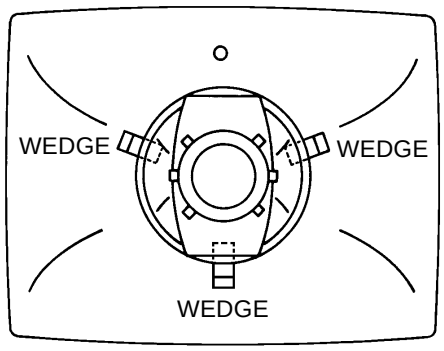
Adjust after performing adjustments in section 4-3.

1. Adjust the differences around the screen by moving the deflection yoke upward/downward and right/left.
   (Refer to Fig. 4-2-a)
2. Insert three wedges between the deflection yoke and CRT funnel to fix the deflection yoke.
   (Refer to Fig. 4-2-b)



UPWARD/DOWNWARD SLANT RIGHT/LEFT SLANT

Fig. 4-2-a



WEDGE POSITION

Fig. 4-2-b

IC DESCRIPTION

SYSCON PCB OEC7059A (IC1001)

PIN NO.	PIN NAME	I/O	DESCRIPTION
1	MSSEN A	I	Input terminal of mecha state sensor.
2	MSSEN B	I	
3	EOT	I	Tape end sensor input signal.
4	BOT	I	Tape start sensor input signal.
5	HI-FI ENV	I	Input terminal of Hi-Fi RF envelope.
6	VIDEO ENV	I	Input terminal of video RF envelope.
7	AFT(MONI.)	I	Input terminal of AFT.
8	AFT(REC)	I	Not used.
9	KEY 1	I	Main unit key input.
10	KEY 2	I	
11	CAPSTAN FWD	O	Capstan forward and backward command. (forward "L" output)
12	CAPSTAN LIMIT	O	Switch the maximum output current of the Capstan Motor.
13	DUMMY V.SYNC	O	Virtual V Pulse output.
14	REMOCON IN	I	Receive the remote control signal.
15	COLOR ROTARY	O	Color Rotary Control output.
16	HEAD AMP.SW	O	Switching output of Head Amp SW on 4 heads.
17	ENV COMP IN	I	Comparison results input of Playback Envelope level ON SP/LP heads (4heads)
18	VIDEO HEAD SW	O	Output terminal of Head SW to Y/C/A and Head Amp.
19	HI-FI HEAD SW	O	Output terminal of audio Head SW to Y/C/A and Head Amp.
20	LDM RVS	O	Output signal to control the rotation direction of the loading motor.
21	LDM FWD	O	
22	DEGAUSS-H	O	Degauss control output
23	MSSENS CTL	O	MSSEN sensor LED.
24	SP-H	O	Output HIGH at tape speed SP.
25	SPOT OFF	O	Output HIGH at turning off a television.(for 500 msec.)
26	EXT MUTE	O	Mute signal of external video mute.
27	VCR POWER	O	VCR power output.
28	TV POWER	O	TV power output.
29	T-REC LED	O	T-REC indication LED output.
30	REC LED	O	REC indication LED output.
31	ON TIMER LED	O	ON-TIMER indication LED output.
32	OTPB LED	O	OTPB indication LED output.
33	PLAY LED	O	PLAY indication LED output.
34	RESET	I	RESET will be done when the voltage goes to HIGH after the reset signal.
35	XCIN	I	Subclock pulse (32kHz)
36	XCOUT	O	
37	VCC	-	5V
38	XIN	I	Connect the main crystal (10MHz)
39	XOUT	O	
40	VSS	-	Ground.
41	X-RAY TEST	O	X-RAY test output
42	CS REC LED	O	Not used.
43	CLKSEL	I	5V
44	OSC IN	I	Terminal to connect the OSD circuit.
45	OSC OUT	O	Terminal to connect the OSD circuit.
46	NUB	-	Ground.
47	AV 1	O	Not used.
48	AV 2	O	Not used.
49	OSD VSS	-	Ground.
50	TAB SW	I	Input terminal for judge the tape if it has TAB or not.
51	SERVICE	I	Input terminal for Service Mode.
52	SD IN	I	Not used.

IC DESCRIPTION

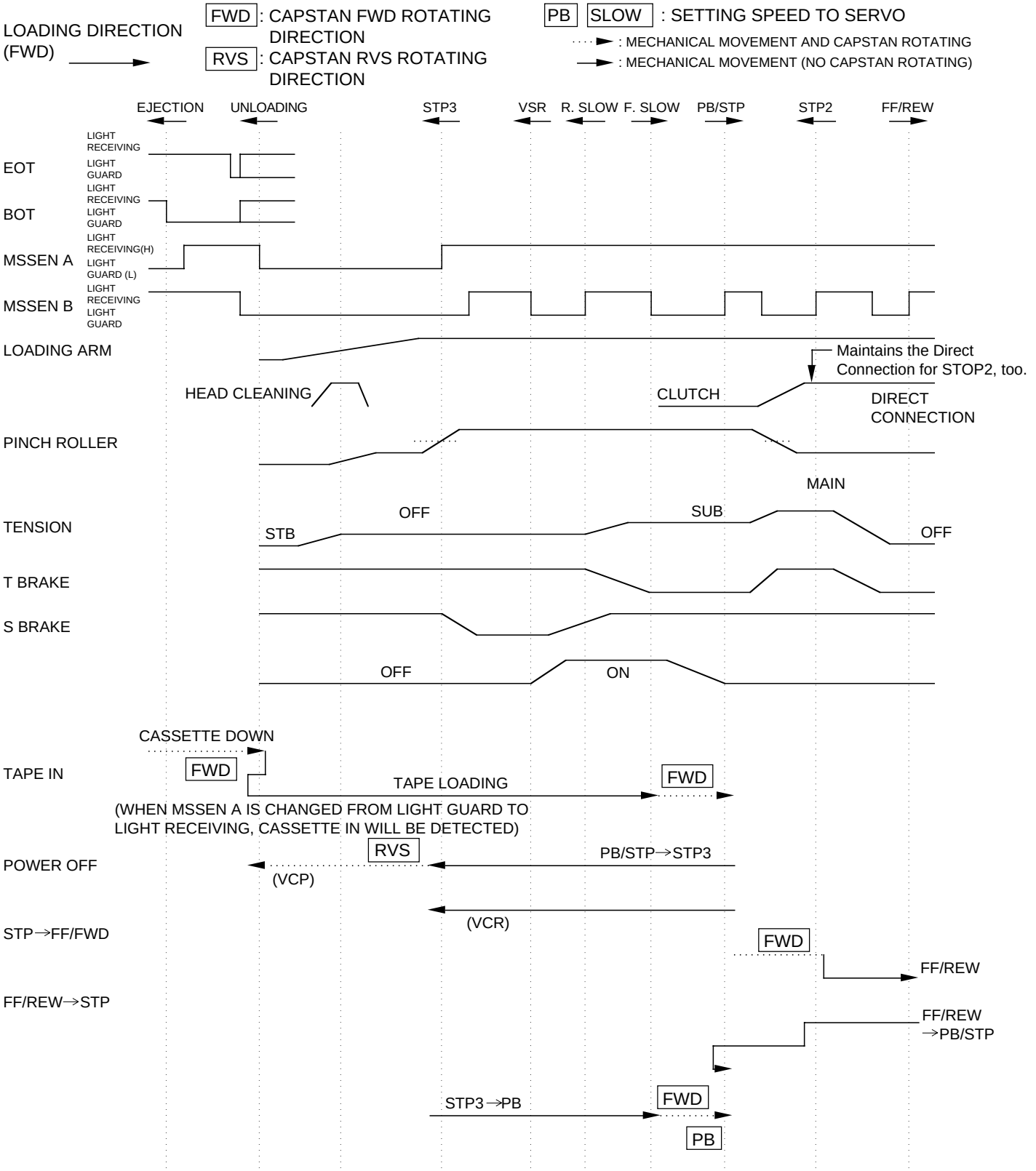
SYSCON PCB OEC7059A (IC1001)

PIN NO.	PIN NAME	I/O	DESCRIPTION
53	OSD VCC	-	5V
54	HLF	-	Filter connection for HLF.
55	VHOLD	-	Condenser connection for VHOLD.
56	CVIN	I	Composite Video input terminal.
57	NUA	-	Ground.
58	H SYNC	I	Input terminal for H-SYNC.
59	V SYNC	I	Input terminal for V-SYNC.
60	OSD OUT 1	O	Blanking output terminal of OSD.
61	CENTER LED	O	CENTER indication LED output.
62	B	O	Color signal blue output.
63	G	O	Color signal green output.
64	R	O	Color signal red output.
65	NC	O	Not used.
66	V REC START H	O	On control of A/V recording (Whole width erase) circuit.
67	NC	O	Not used.
68	SDATA	O	DATA terminal for serial communication.
69	CS	O	Output terminal to permit serial communication.
70	SCLK	O	CLOCK terminal for serial communication.
71	CLK 1	O	CLOCK terminal for I2C BUS communication.
72	DATA 1	I/O	DATA terminal for I2C BUS communication.
73	FF/REW-L	O	The output terminal of to that switches the frequency characteristic of CTL by the circuit bill outside.
74	JUST CLOCK	I	Not used.
75	VOLUME	O	PWM output of volume control.
76	CAPSTAN PWM	O	PWM output of Capstan control.
77	DRUM PWM	O	PWM output of Cylinder control.
78	CAPSTAN FULL	O	Output the HIGH during the acceleration force of capstan motor at SLOW mode.
79	REEL S	I	Not used.
80	REEL T	I	Input terminal of reel sensor take up.
81	VCR MUTE	O	Mute signal of audio mute. (VCR)
82	TV MUTE	O	Mute signal of audio mute. (TV)
83	EXT MUTE	O	Not used.
84	CA/MA SEL	O	Not used.
85	POWER FAIL	I	Input for the detection of power interruption.
86	IIC OFF	I	When input "L" the I2CBUS communication is stopped.
87	CAPSTAN FG	I	Input terminal for CAPSTAN FG signal detection.
88	AMP VSS	-	Ground.
89	DRUM FG	I	Input terminal for DRUM FG signal detection.
90	DRUM PG	I	Input terminal for DRUM PG signal detection.
91	AMP VREFOUT	O	Condenser connection for AMP-VREFOUT.
92	AMP VREFIN	I	Condenser connection for AMP-VREFIN.
93	C	I	Condenser connection for C.
94	CTL-	I/O	Input and output terminal of Control Head.
95	CTL+	I/O	Input terminal of Control Head.
96	AMP C	-	Condenser connection for AMP C.
97	CTL AMP OUT	O	Output terminal for amp out.
98	AMPVCC	-	5V
99	ANALOG VCC	-	5V
100	DEW(mono)	I	Input terminal for the detection with the dew of the cylinder.
100	STEREO SEL(HiFi)	I	Input terminal for the judgement of voice reception condition.

- The assignment for Pin 100 is varies according to the SET which is MONO or Hi-Fi.
  It is used for DEW terminal in MONO and STEREO SEL terminal in Hi-Fi.

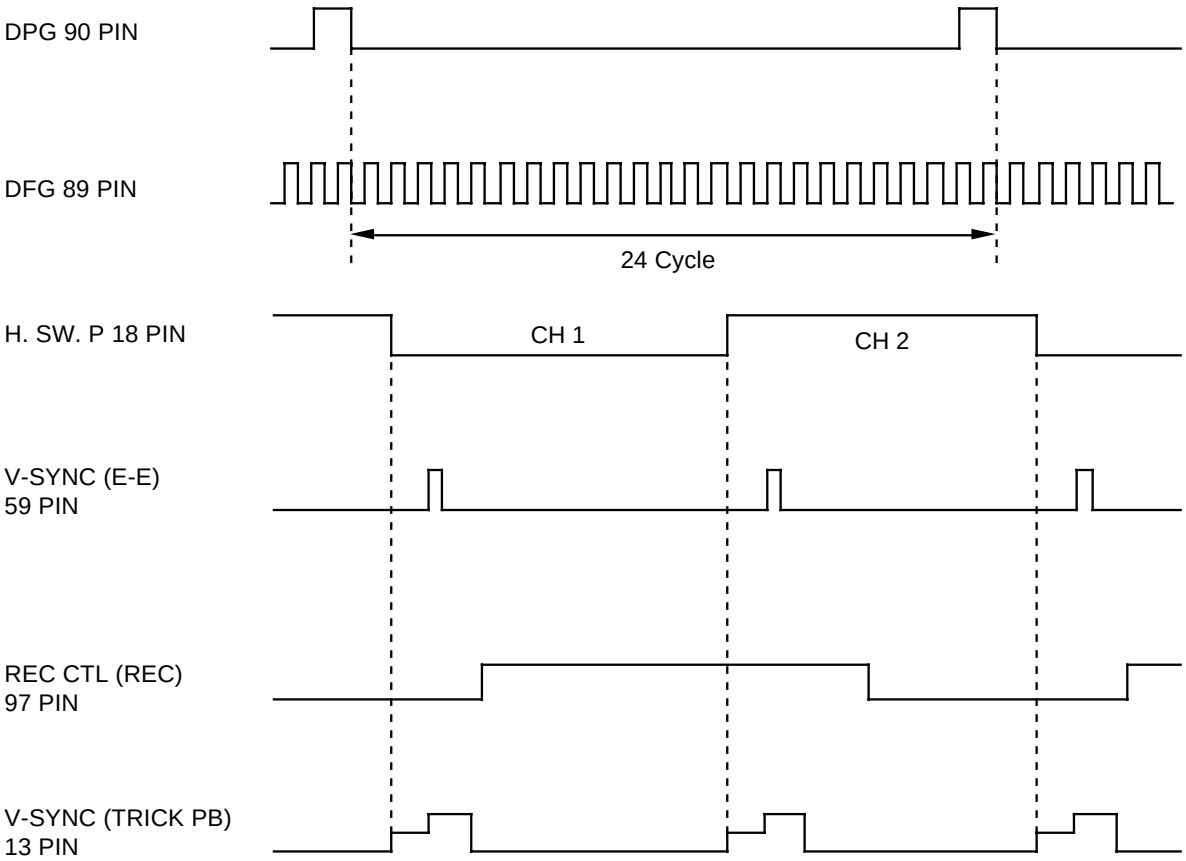
GUIDE FOR REPAIRING

MECHANISM TIMING CHART



SERVO TIMING CHART

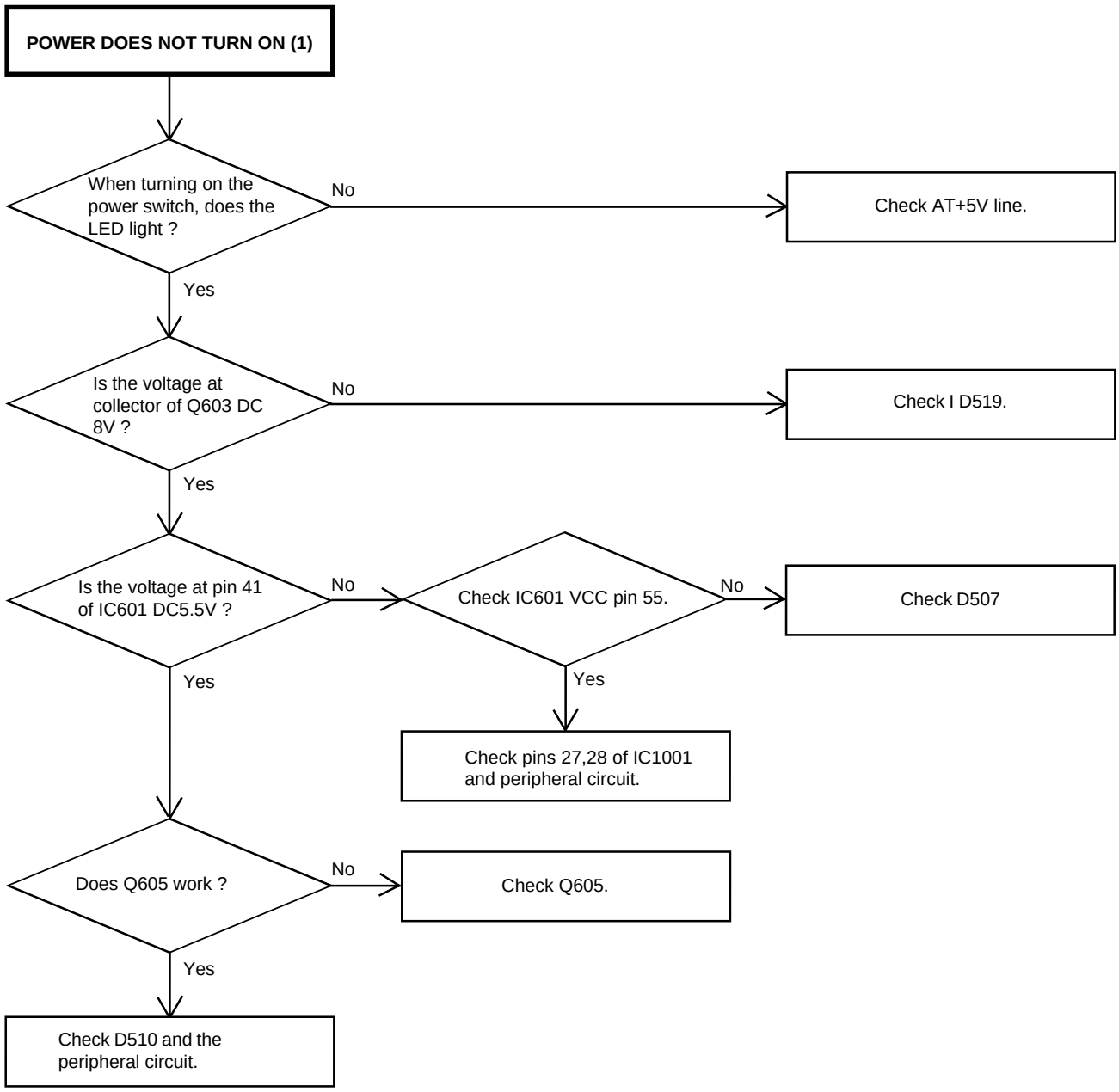
SYSCON PCB IC1001 (OEC7059A)



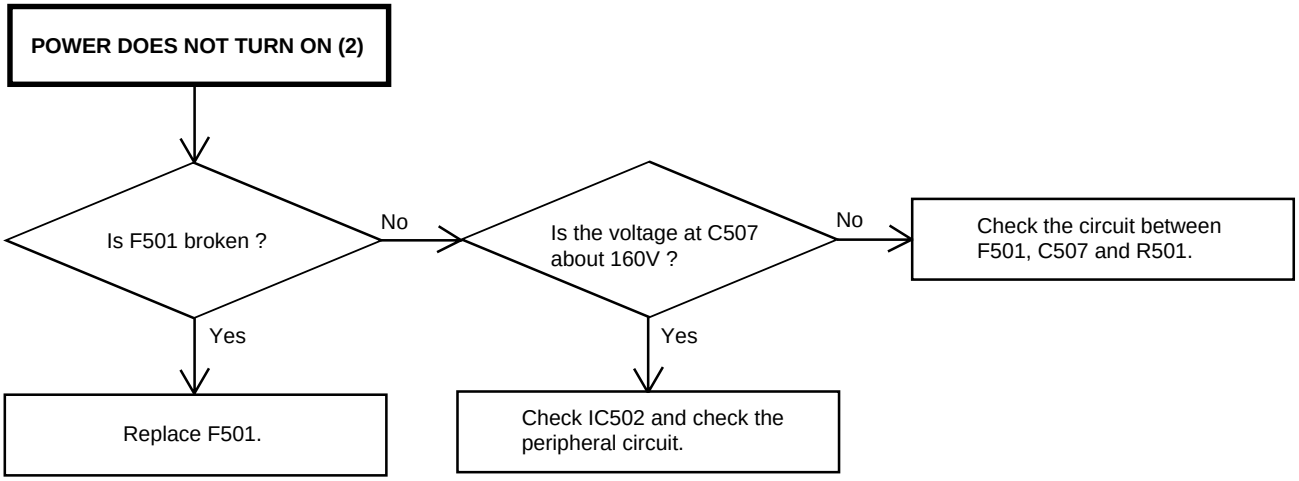
• WAVEFORM CHANGES DEPENDED ON THE TAPE SPEED

TROUBLESHOOTING GUIDE

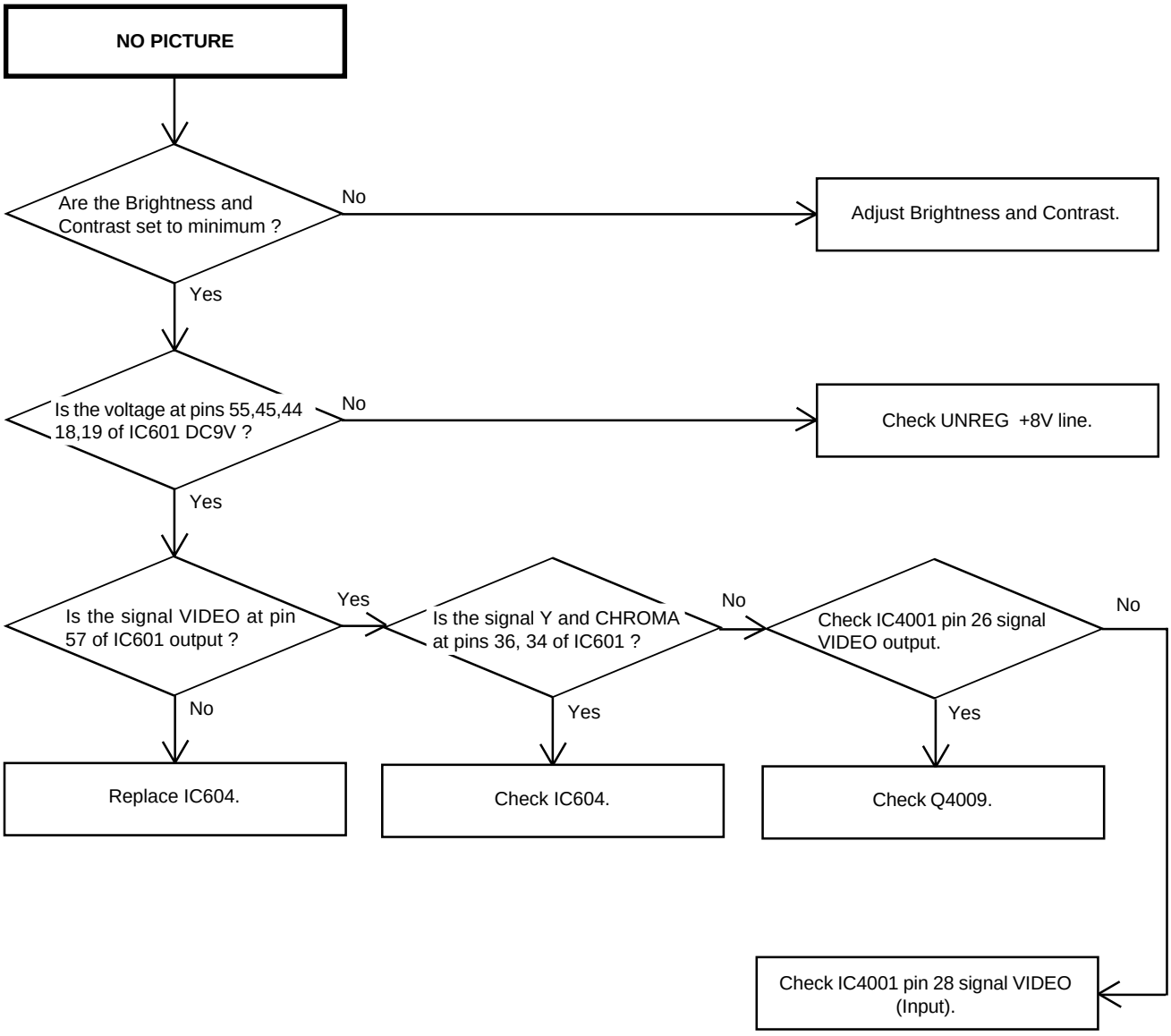
(TV SECTION)



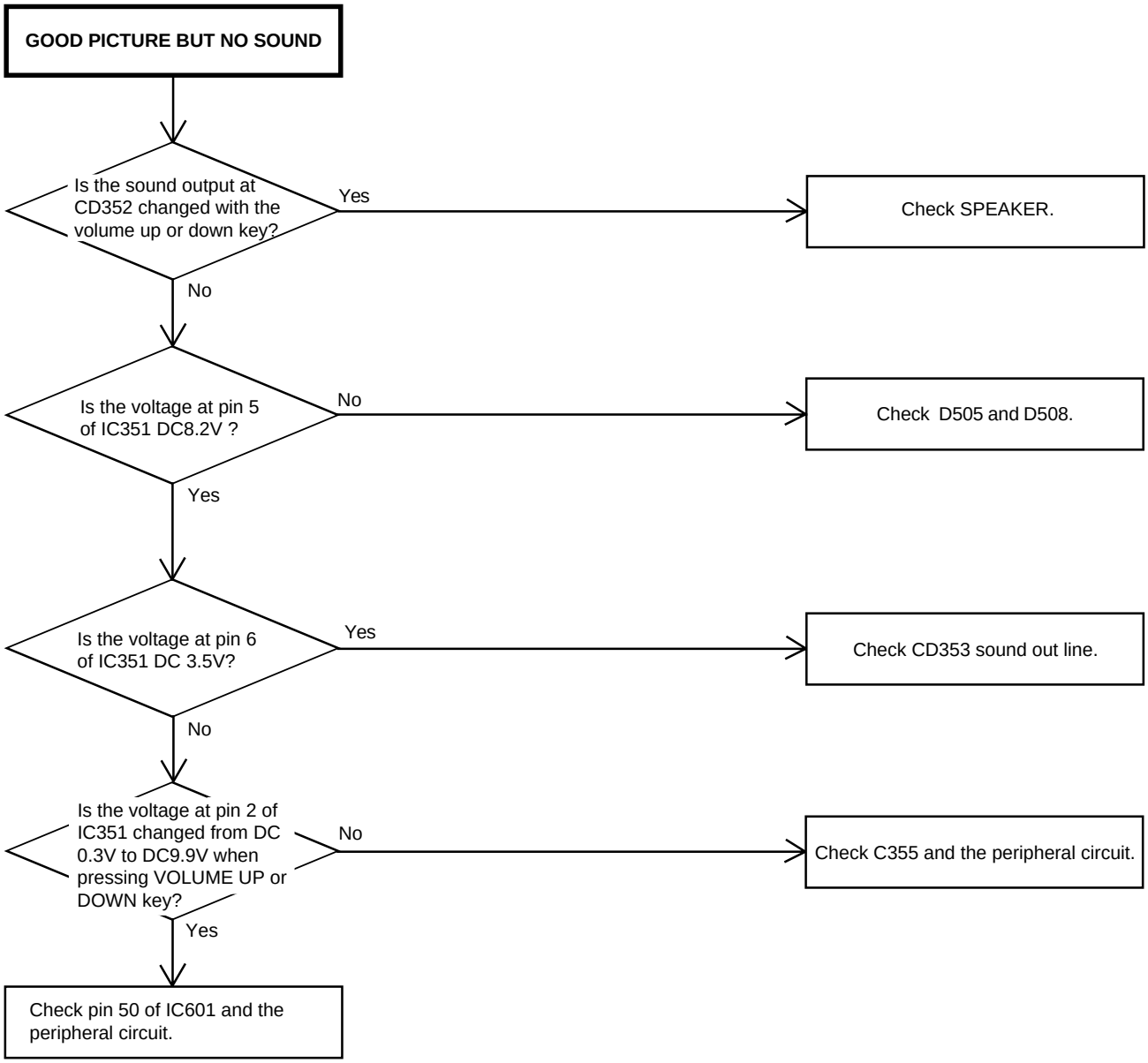
TROUBLESHOOTING GUIDE



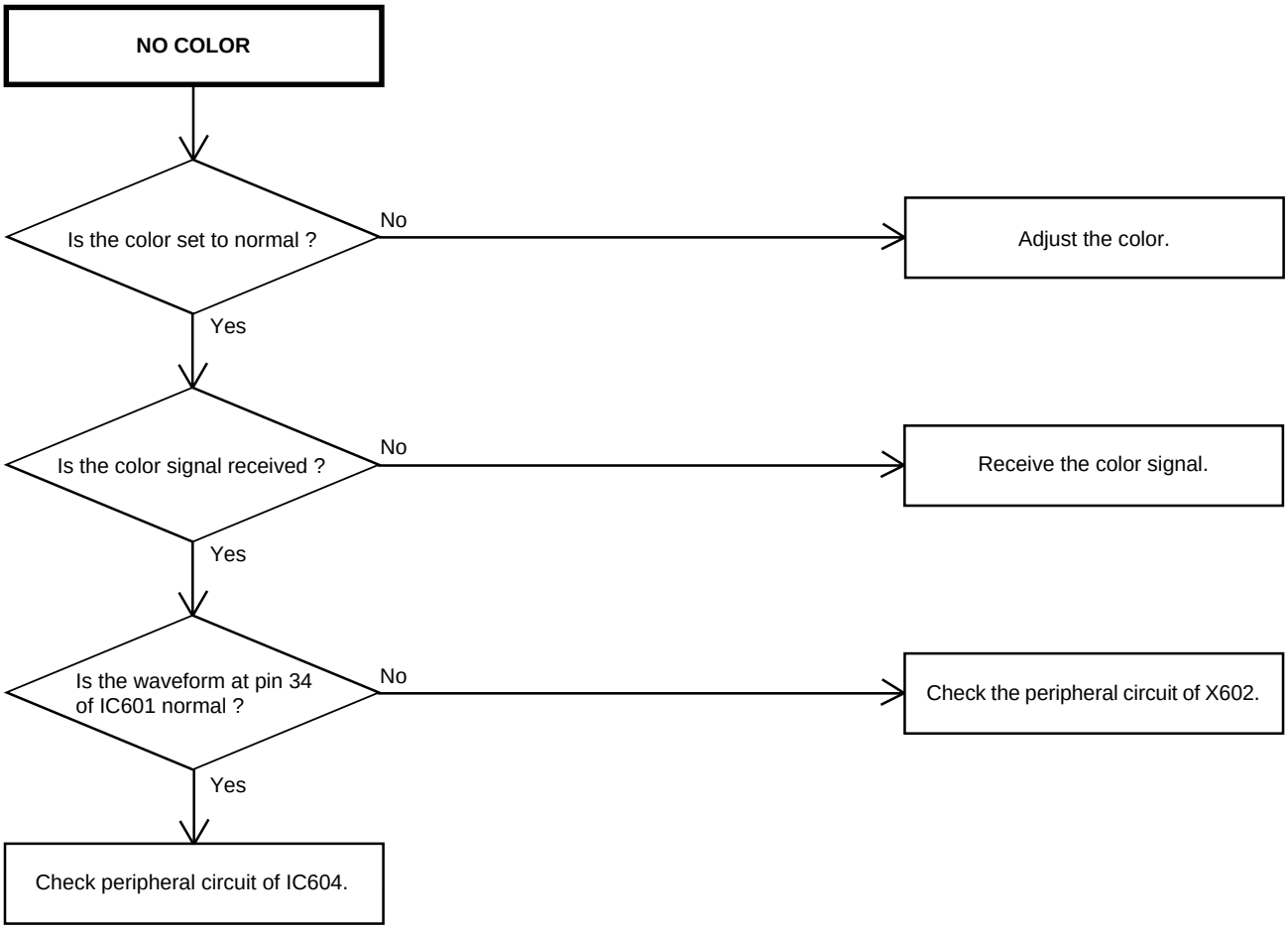
TROUBLESHOOTING GUIDE



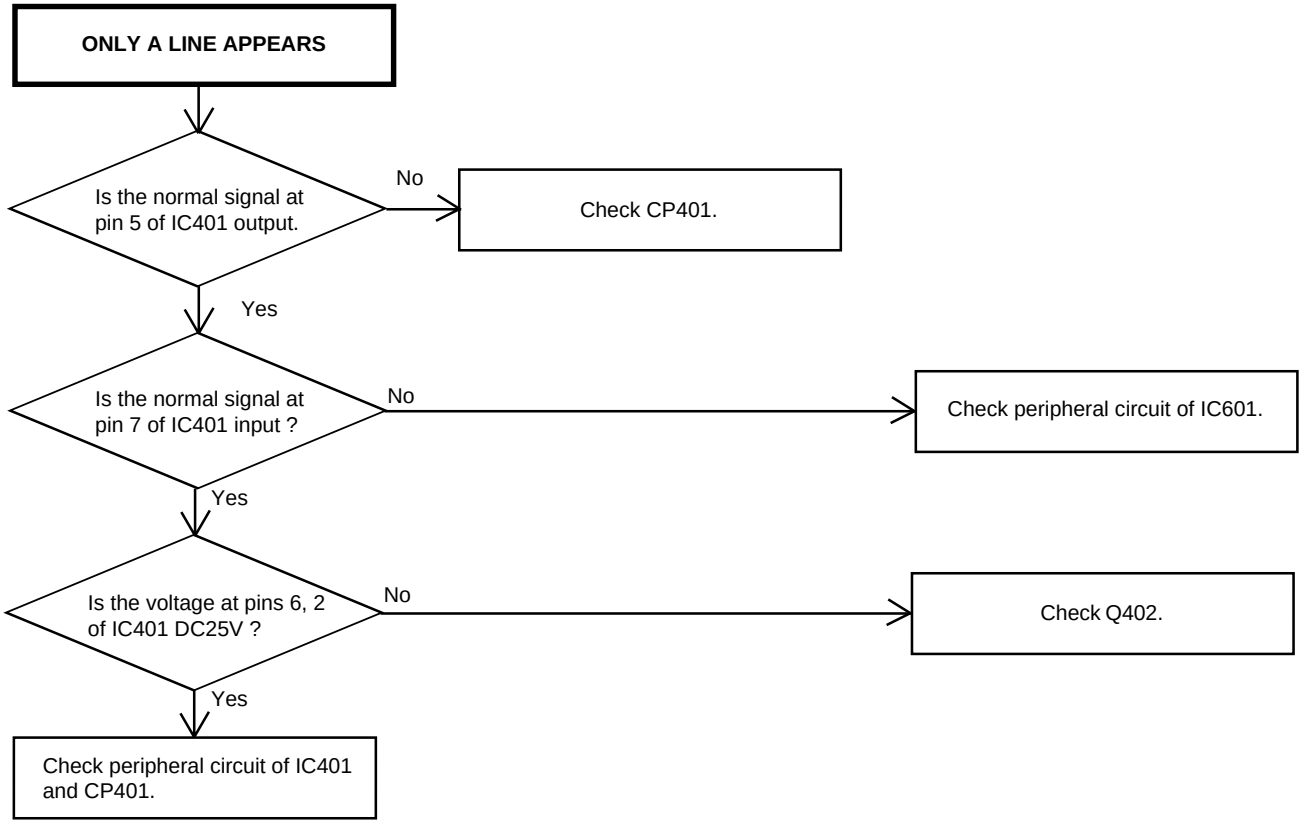
TROUBLESHOOTING GUIDE

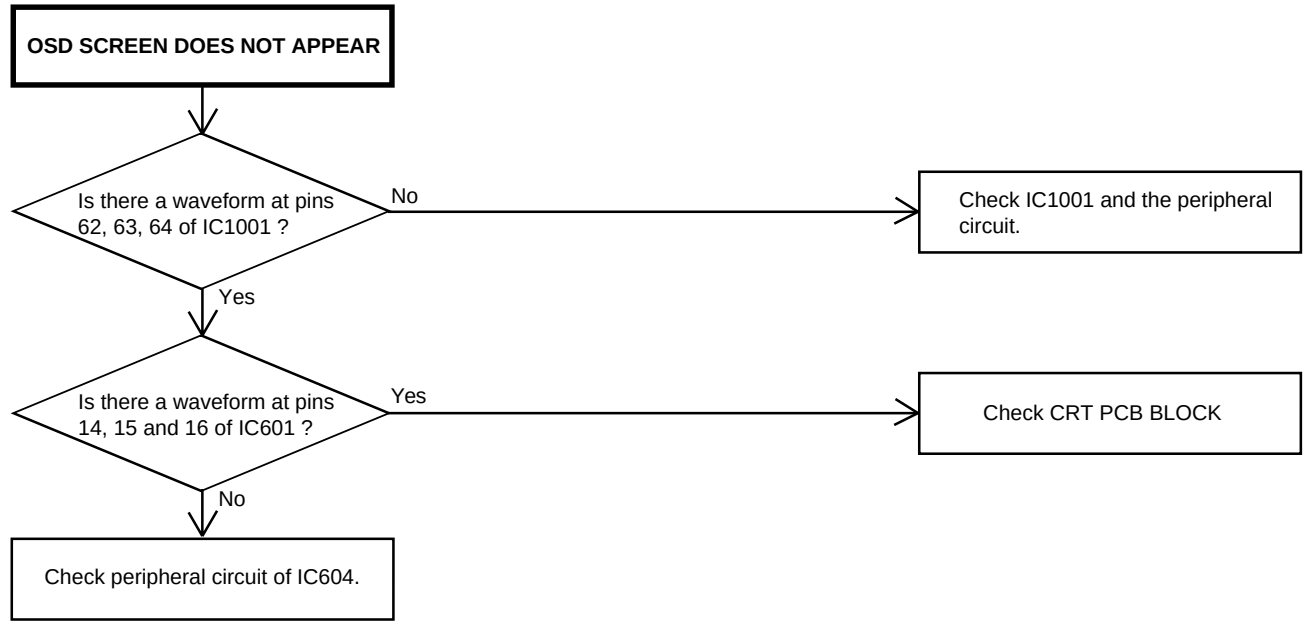

GOOD PICTURE BUT NO SOUND
Is the sound output at CD352 changed with the volume up or down key?
Yes
Check SPEAKER.
No
Is the voltage at pin 5 of IC351 DC8.2V ?
No
Check D505 and D508.
Yes
Is the voltage at pin 6 of IC351 DC 3.5V?
Yes
Check CD353 sound out line.
No
Is the voltage at pin 2 of IC351 changed from DC 0.3V to DC9.9V when pressing VOLUME UP or DOWN key?
No
Check C355 and the peripheral circuit.
Yes
Check pin 50 of IC601 and the peripheral circuit.

TROUBLESHOOTING GUIDE



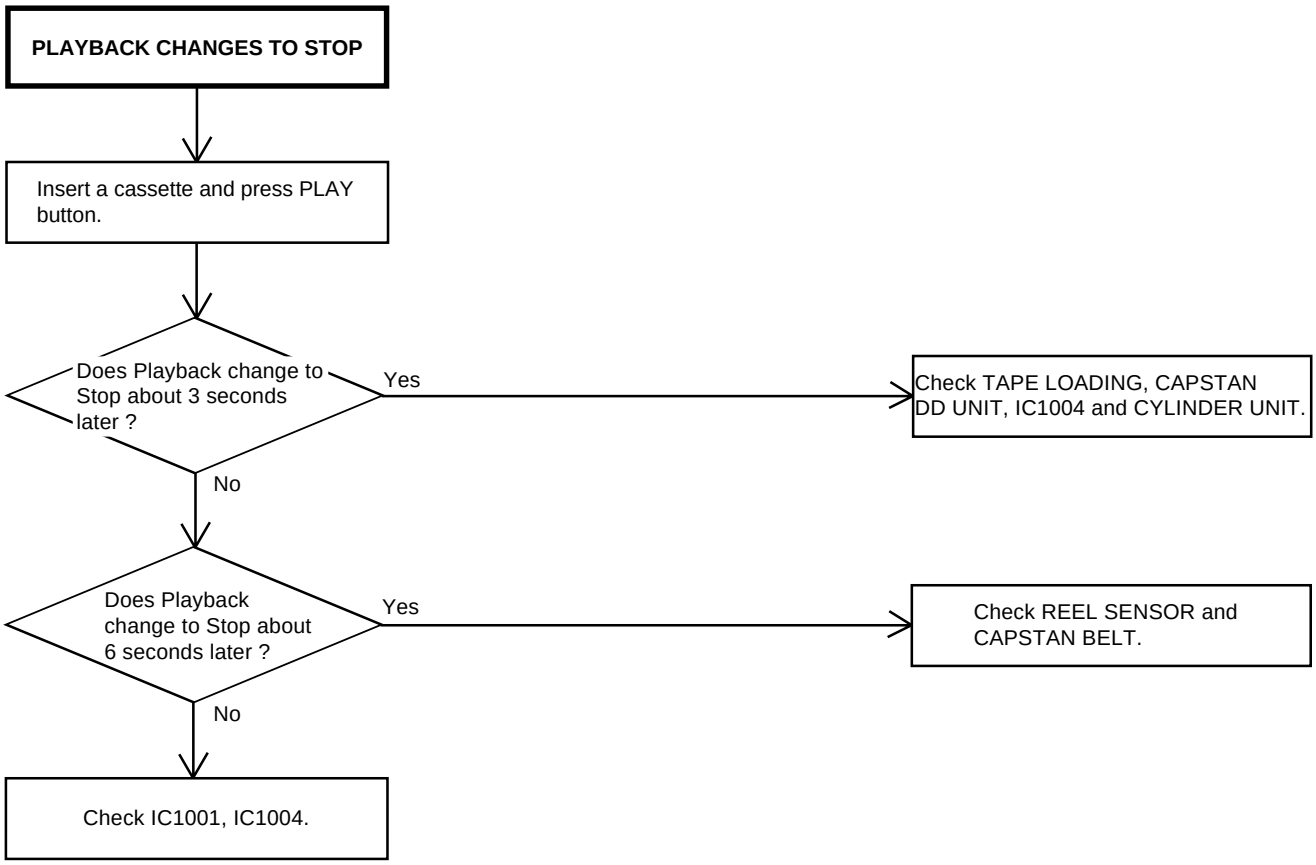
TROUBLESHOOTING GUIDE


ONLY A LINE APPEARS
Is the normal signal at pin 5 of IC401 output.
No
Check CP401.
Yes
Is the normal signal at pin 7 of IC401 input ?
No
Check peripheral circuit of IC601.
Yes
Is the voltage at pins 6, 2 of IC401 DC25V ?
No
Check Q402.
Yes
Check peripheral circuit of IC401 and CP401.

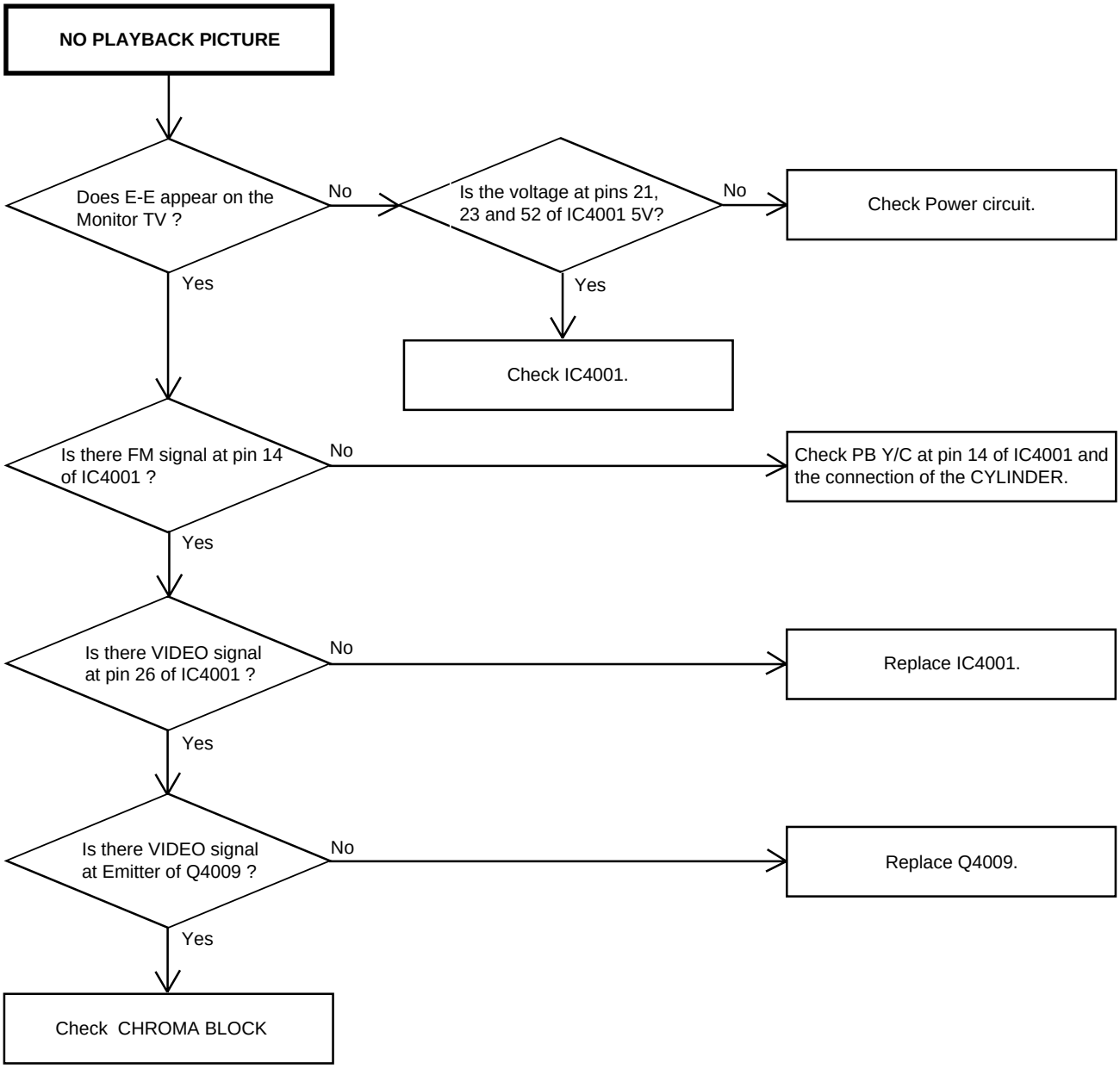

OSD SCREEN DOES NOT APPEAR
Is there a waveform at pins 62, 63, 64 of IC1001 ?
No
Check IC1001 and the peripheral circuit.
Yes
Is there a waveform at pins 14, 15 and 16 of IC601 ?
Yes
Check CRT PCB BLOCK
No
Check peripheral circuit of IC604.

TROUBLESHOOTING GUIDE

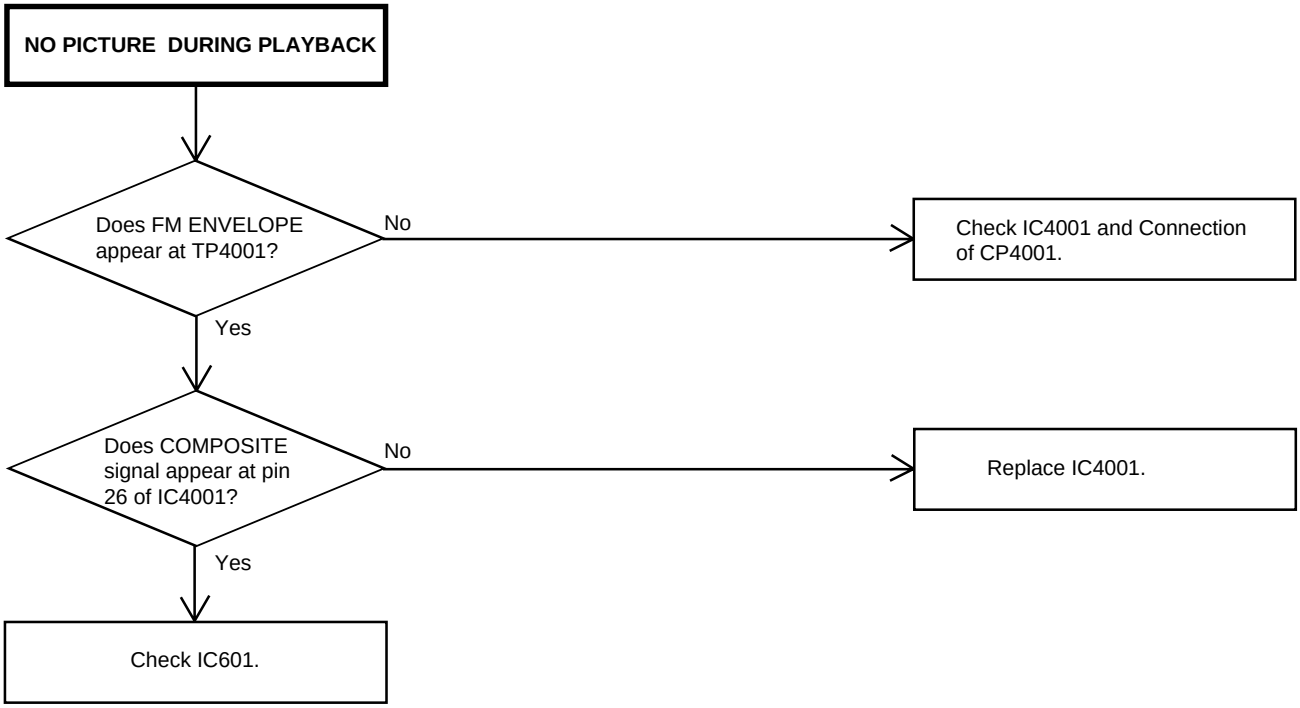
(VCR SECTION)


PLAYBACK CHANGES TO STOP
Insert a cassette and press PLAY button.
Does Playback change to Stop about 3 seconds later ?
Yes
Check TAPE LOADING, CAPSTAN DD UNIT, IC1004 and CYLINDER UNIT.
No
Does Playback change to Stop about 6 seconds later ?
Yes
Check REEL SENSOR and CAPSTAN BELT.
No
Check IC1001, IC1004.

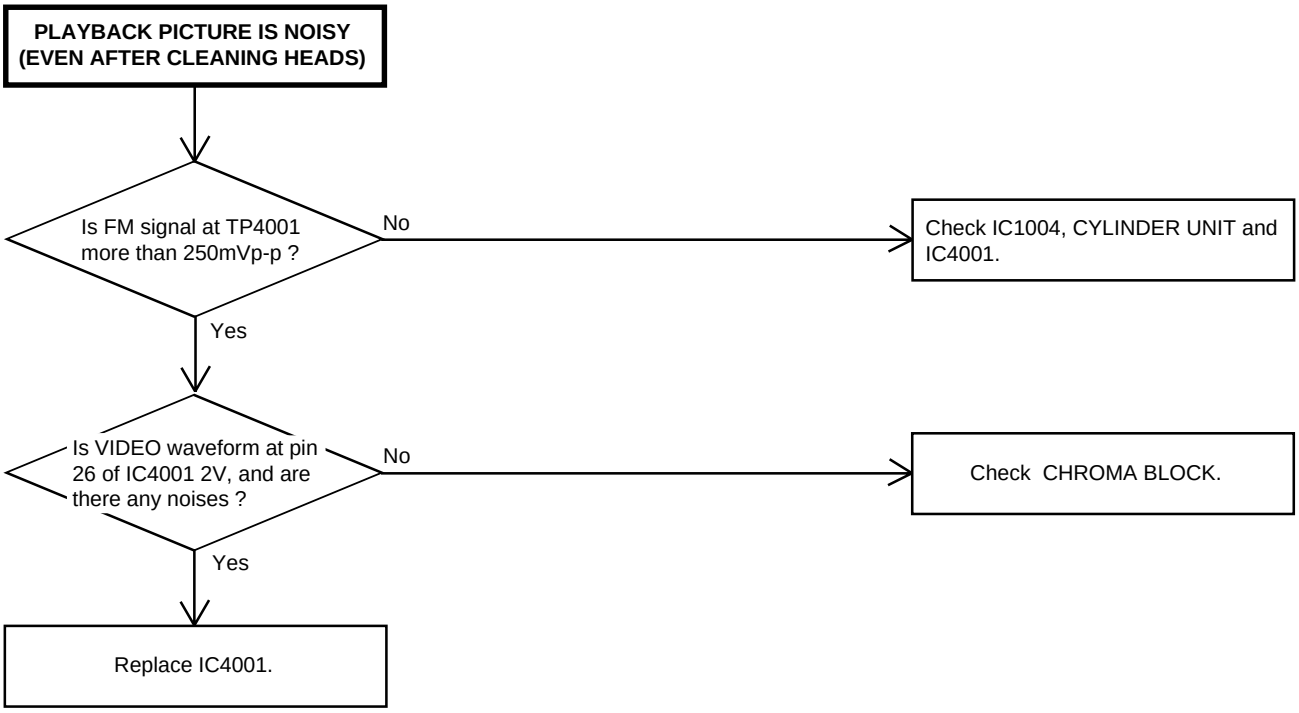
TROUBLESHOOTING GUIDE

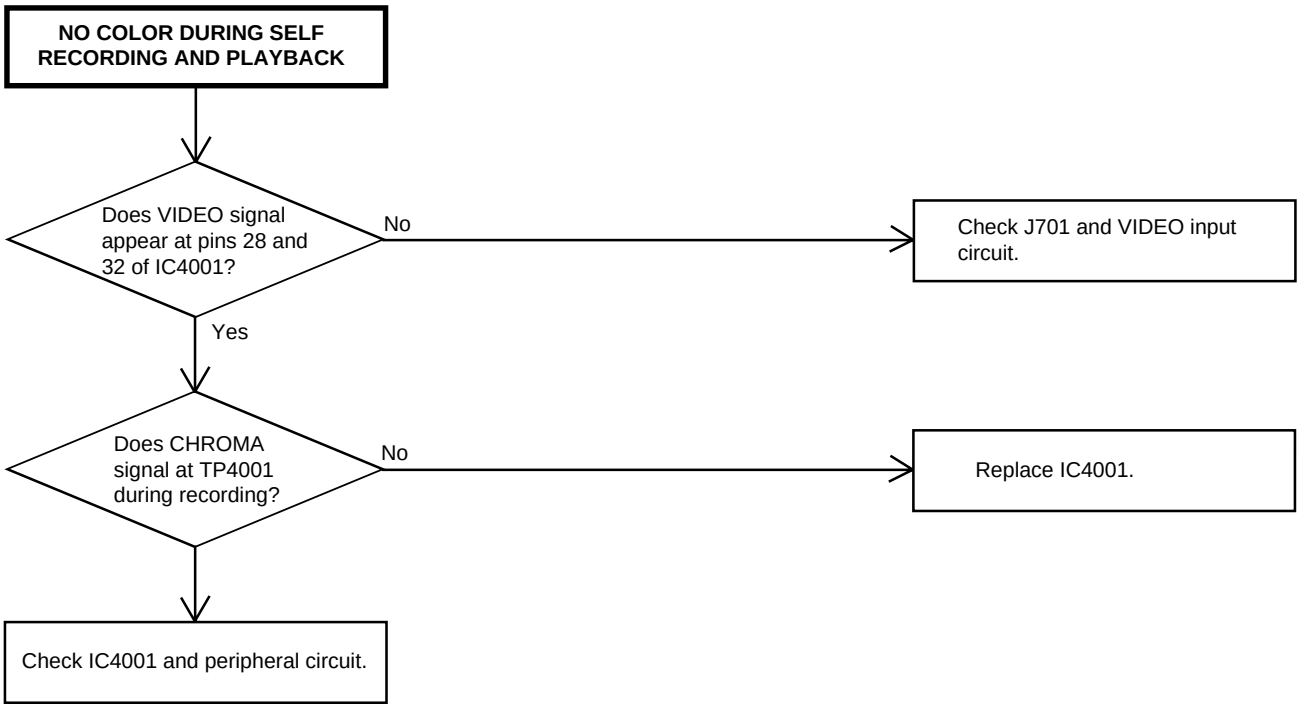

NO PLAYBACK PICTURE
Does E-E appear on the Monitor TV ?
No
Is the voltage at pins 21, 23 and 52 of IC4001 5V?
No
Check Power circuit.
Yes
Yes
Check IC4001.
Is there FM signal at pin 14 of IC4001 ?
No
Check PB Y/C at pin 14 of IC4001 and the connection of the CYLINDER.
Yes
Is there VIDEO signal at pin 26 of IC4001 ?
No
Replace IC4001.
Yes
Is there VIDEO signal at Emitter of Q4009 ?
No
Replace Q4009.
Yes
Check CHROMA BLOCK

TROUBLESHOOTING GUIDE

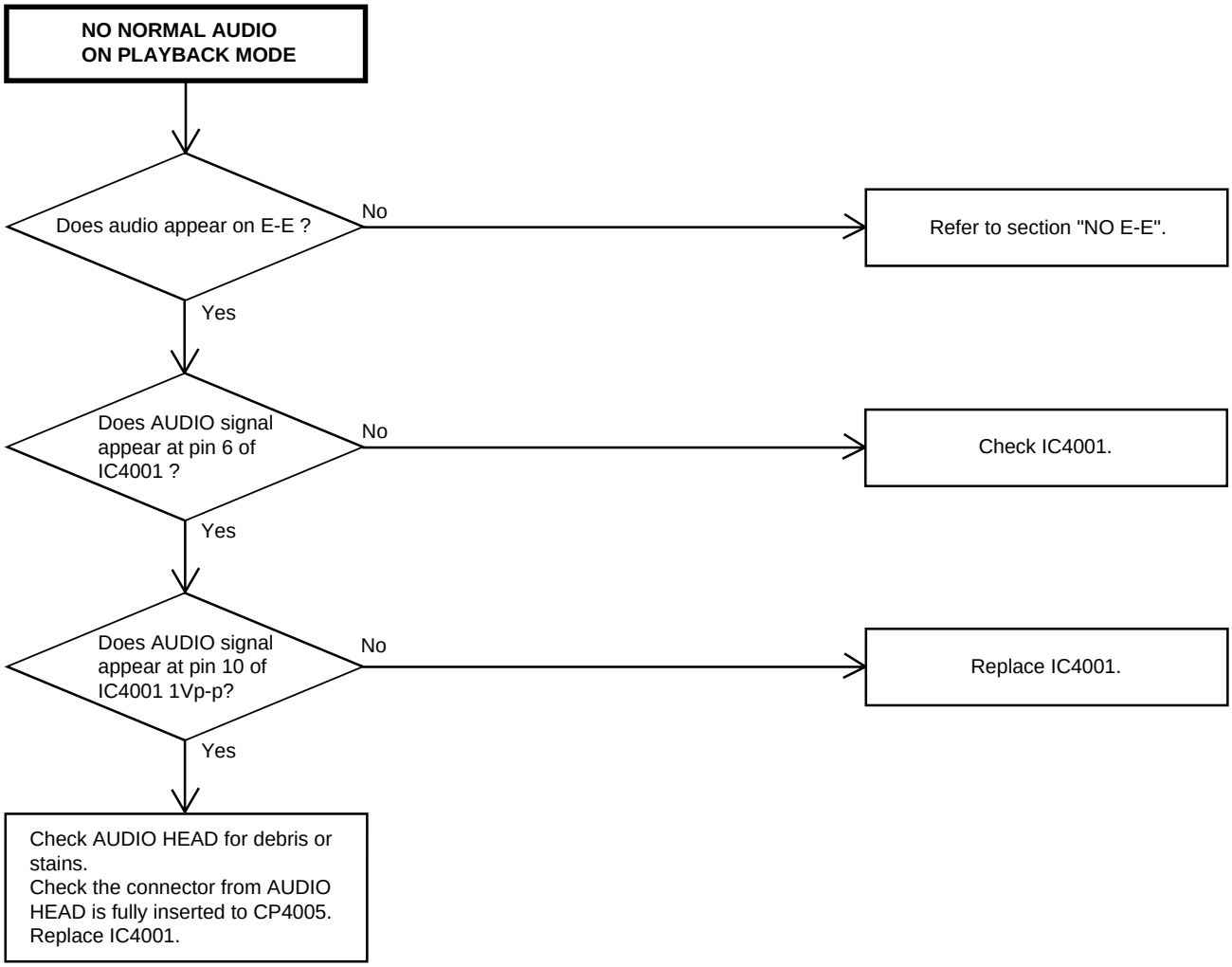


TROUBLESHOOTING GUIDE

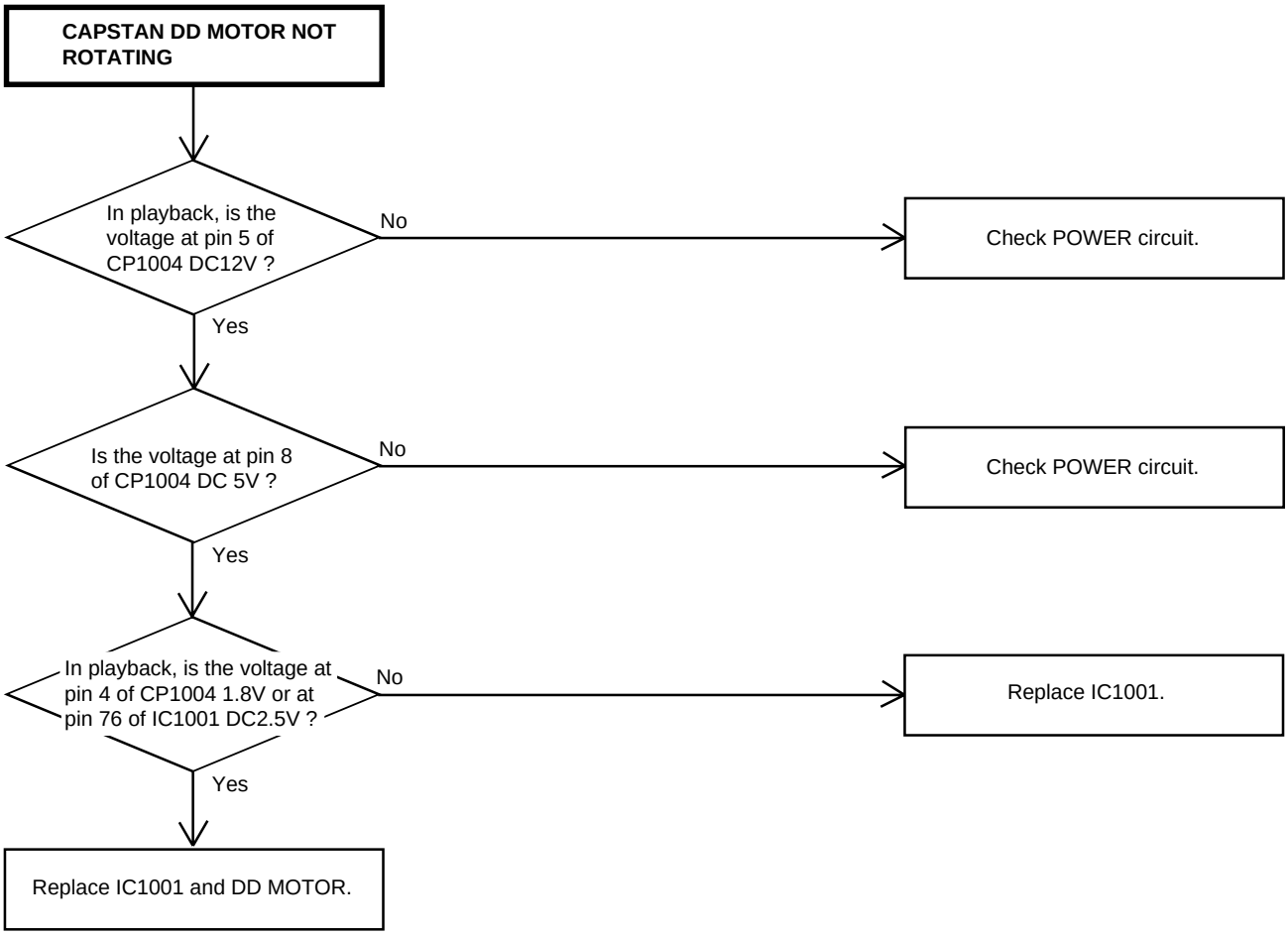

PLAYBACK PICTURE IS NOISY (EVEN AFTER CLEANING HEADS)
Is FM signal at TP4001 more than 250mVp-p ?
No
Check IC1004, CYLINDER UNIT and IC4001.
Yes
Is VIDEO waveform at pin 26 of IC4001 2V, and are there any noises ?
No
Check CHROMA BLOCK.
Yes
Replace IC4001.


NO COLOR DURING SELF RECORDING AND PLAYBACK
Does VIDEO signal appear at pins 28 and 32 of IC4001?
No
Check J701 and VIDEO input circuit.
Yes
Does CHROMA signal at TP4001 during recording?
No
Replace IC4001.
Check IC4001 and peripheral circuit.

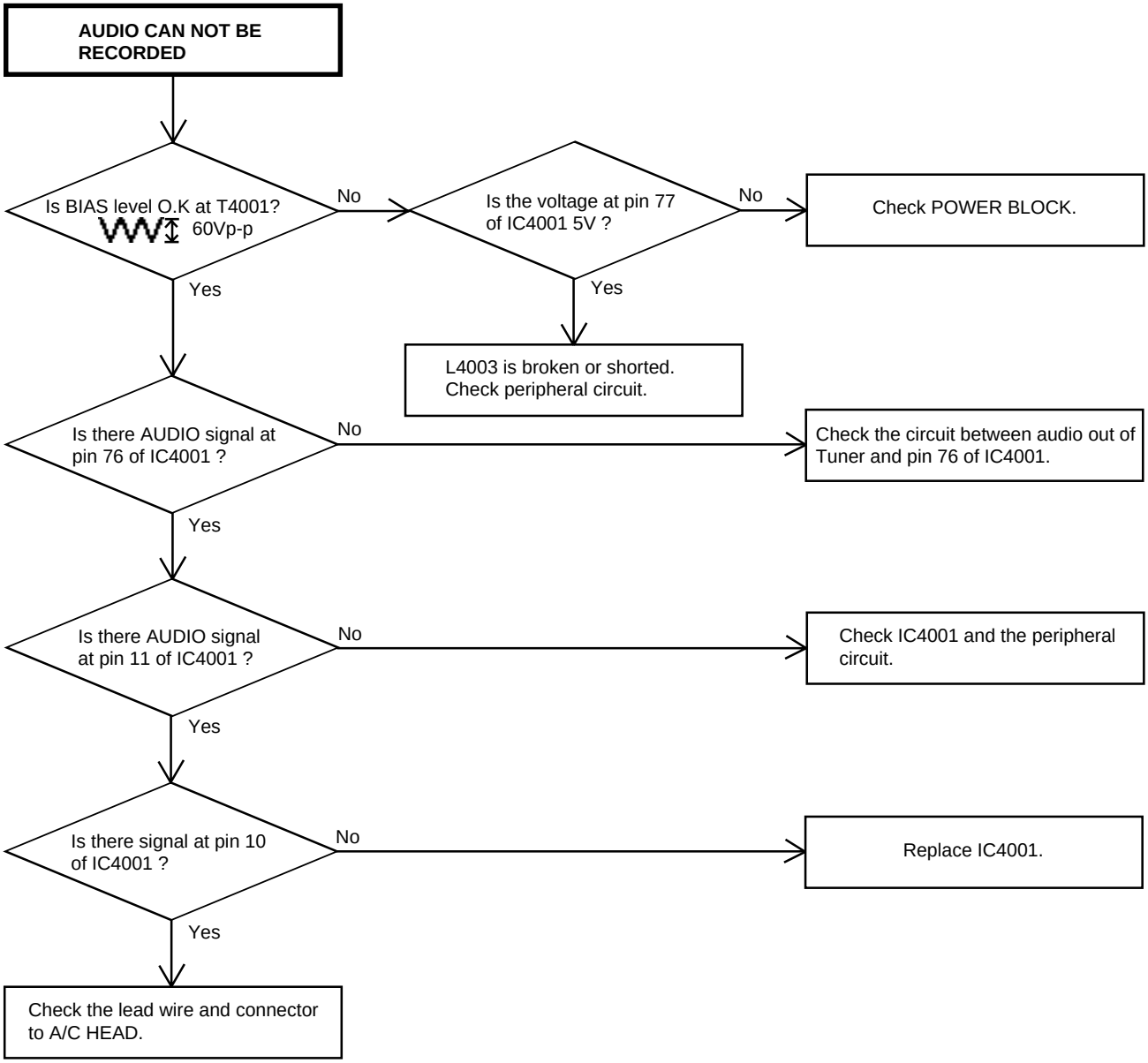
TROUBLESHOOTING GUIDE



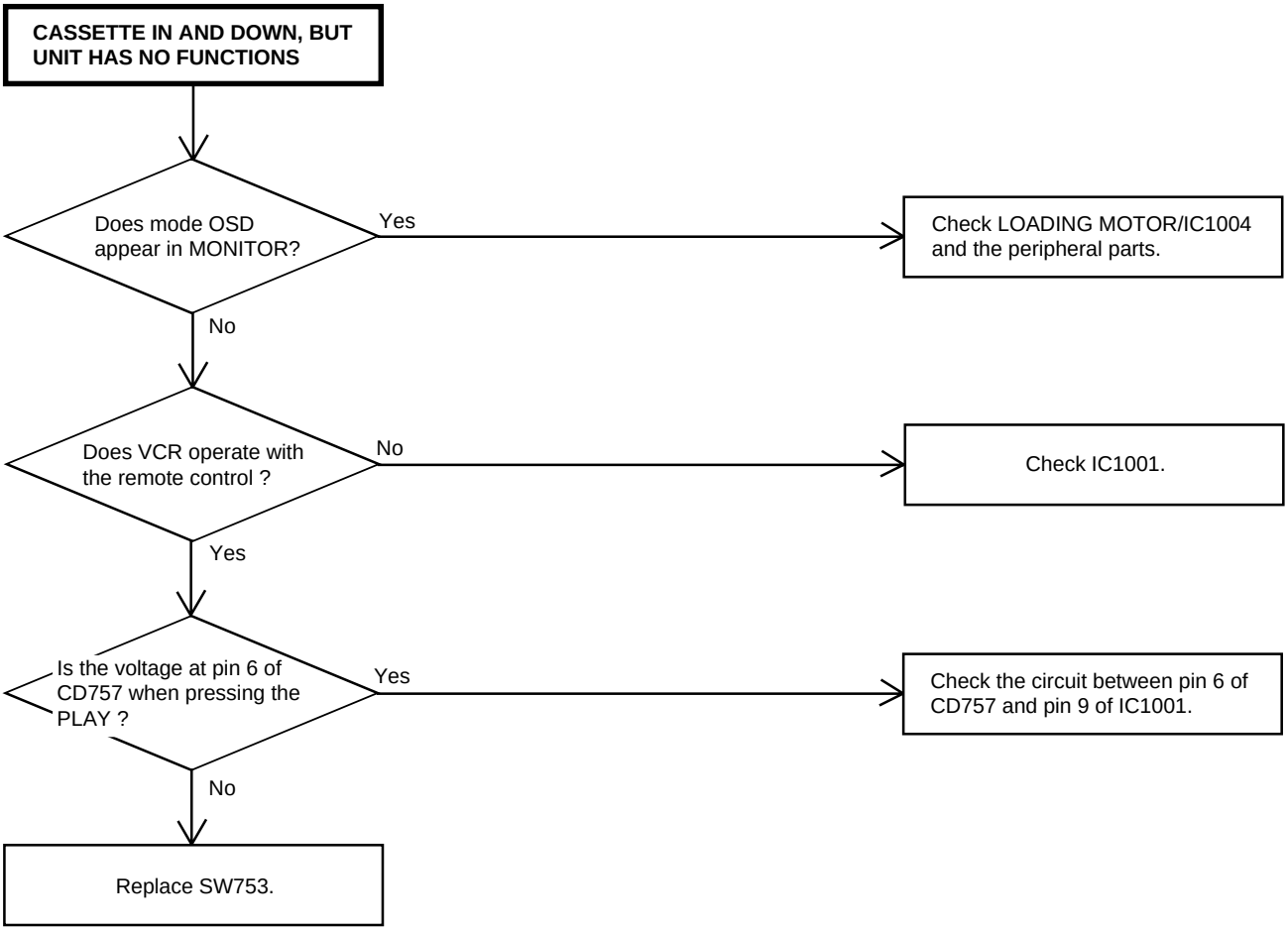
TROUBLESHOOTING GUIDE


CAPSTAN DD MOTOR NOT ROTATING
In playback, is the voltage at pin 5 of CP1004 DC12V ?
No
Check POWER circuit.
Yes
Is the voltage at pin 8 of CP1004 DC 5V ?
No
Check POWER circuit.
Yes
In playback, is the voltage at pin 4 of CP1004 1.8V or at pin 76 of IC1001 DC2.5V ?
No
Replace IC1001.
Yes
Replace IC1001 and DD MOTOR.

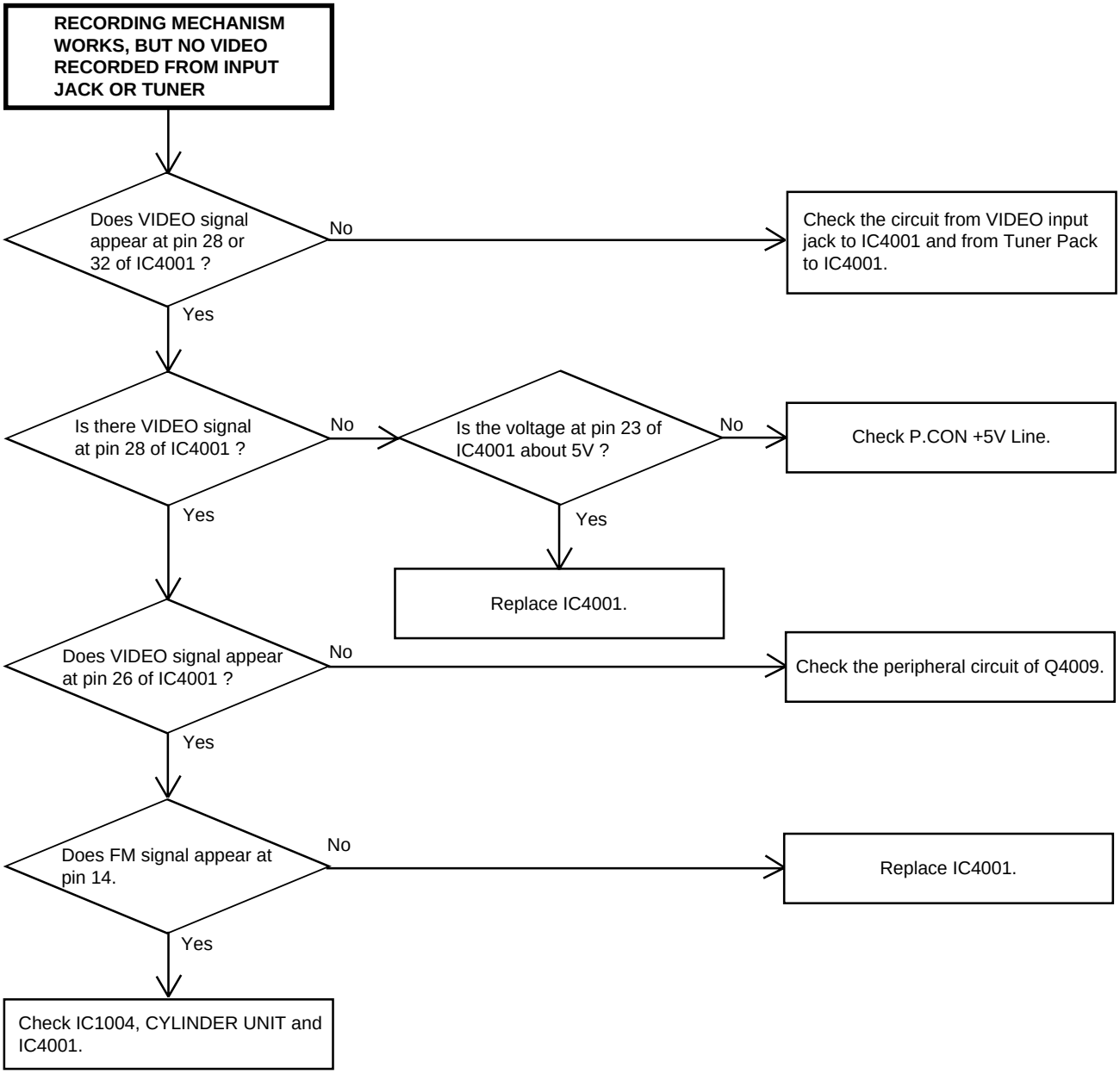
TROUBLESHOOTING GUIDE


AUDIO CAN NOT BE RECORDED
Is BIAS level O.K at T4001?
60Vp-p
No
Is the voltage at pin 77 of IC4001 5V ?
No
Check POWER BLOCK.
Yes
Yes
L4003 is broken or shorted. Check peripheral circuit.
Is there AUDIO signal at pin 76 of IC4001 ?
No
Check the circuit between audio out of Tuner and pin 76 of IC4001.
Yes
Is there AUDIO signal at pin 11 of IC4001 ?
No
Check IC4001 and the peripheral circuit.
Yes
Is there signal at pin 10 of IC4001 ?
No
Replace IC4001.
Yes
Check the lead wire and connector to A/C HEAD.

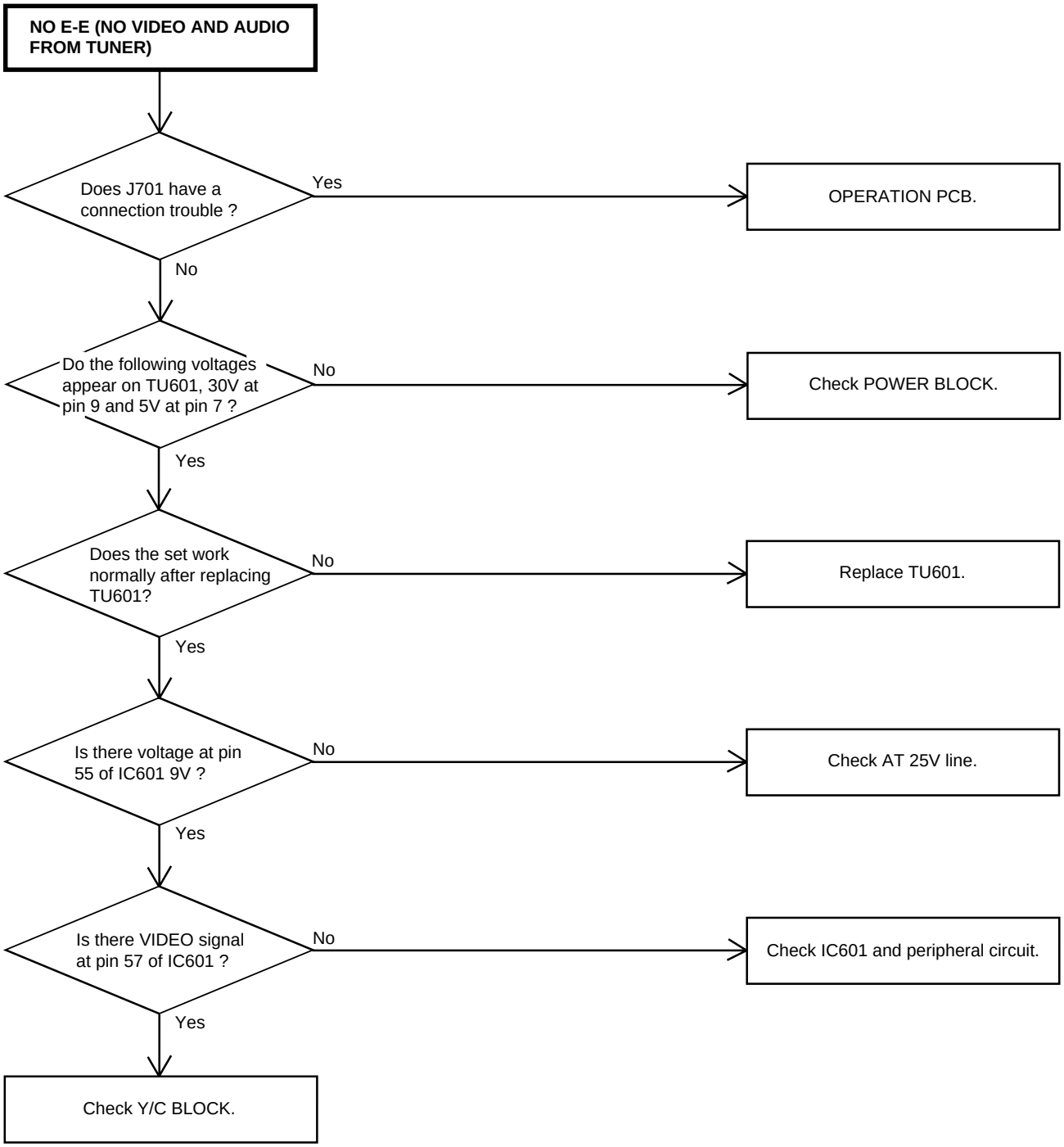
TROUBLESHOOTING GUIDE


CASSETTE IN AND DOWN, BUT UNIT HAS NO FUNCTIONS
Does mode OSD appear in MONITOR?
Yes
Check LOADING MOTOR/IC1004 and the peripheral parts.
No
Does VCR operate with the remote control ?
No
Check IC1001.
Yes
Is the voltage at pin 6 of CD757 when pressing the PLAY ?
Yes
Check the circuit between pin 6 of CD757 and pin 9 of IC1001.
No
Replace SW753.

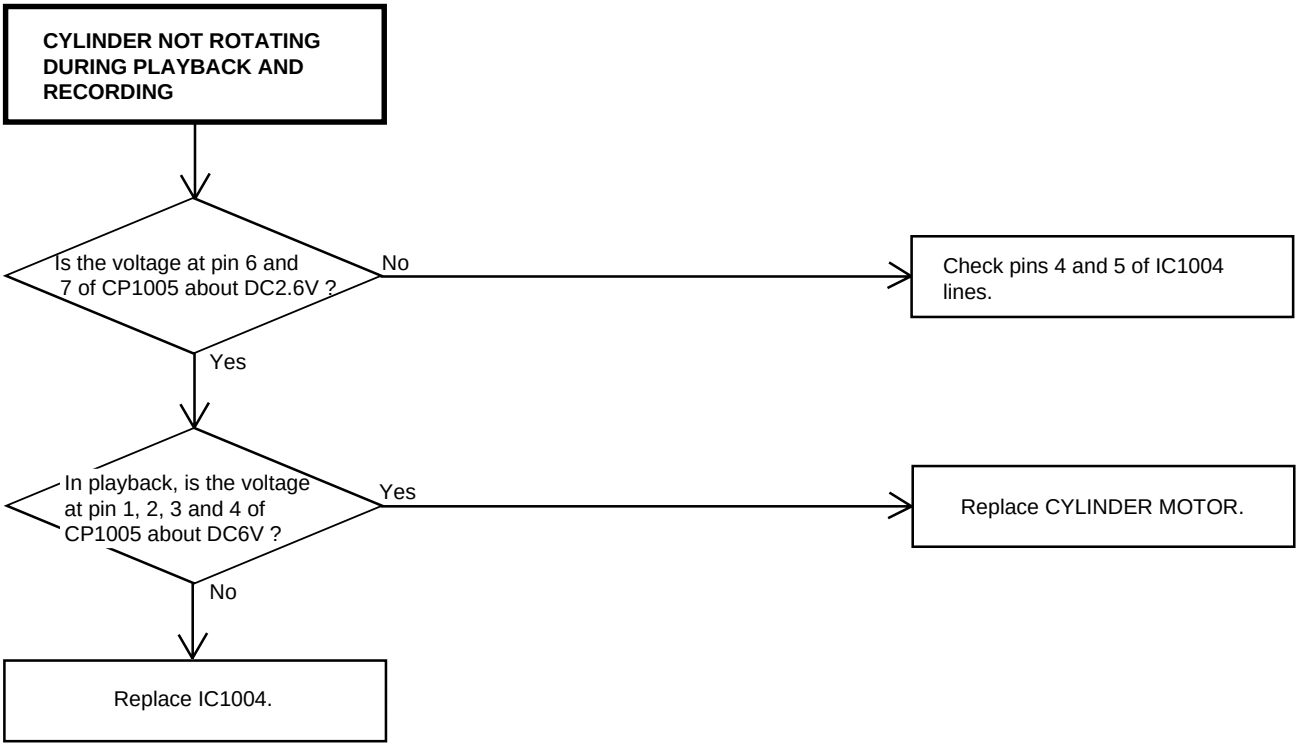
TROUBLESHOOTING GUIDE

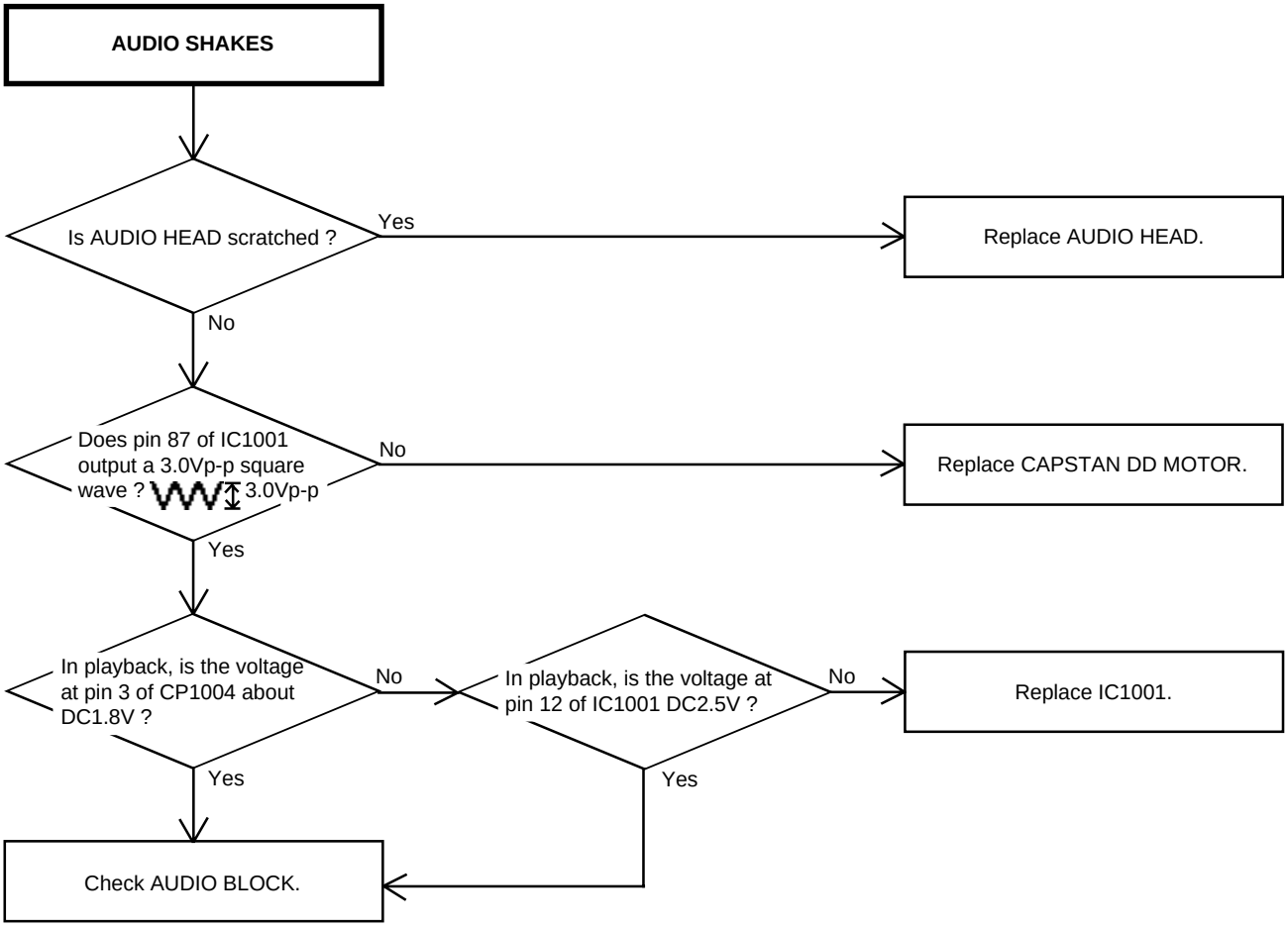

RECORDING MECHANISM WORKS, BUT NO VIDEO RECORDED FROM INPUT JACK OR TUNER
Does VIDEO signal appear at pin 28 or 32 of IC4001 ?
No
Check the circuit from VIDEO input jack to IC4001 and from Tuner Pack to IC4001.
Yes
Is there VIDEO signal at pin 28 of IC4001 ?
No
Is the voltage at pin 23 of IC4001 about 5V ?
No
Check P.CON +5V Line.
Yes
Yes
Replace IC4001.
Does VIDEO signal appear at pin 26 of IC4001 ?
No
Check the peripheral circuit of Q4009.
Yes
Does FM signal appear at pin 14.
No
Replace IC4001.
Yes
Check IC1004, CYLINDER UNIT and IC4001.

TROUBLESHOOTING GUIDE

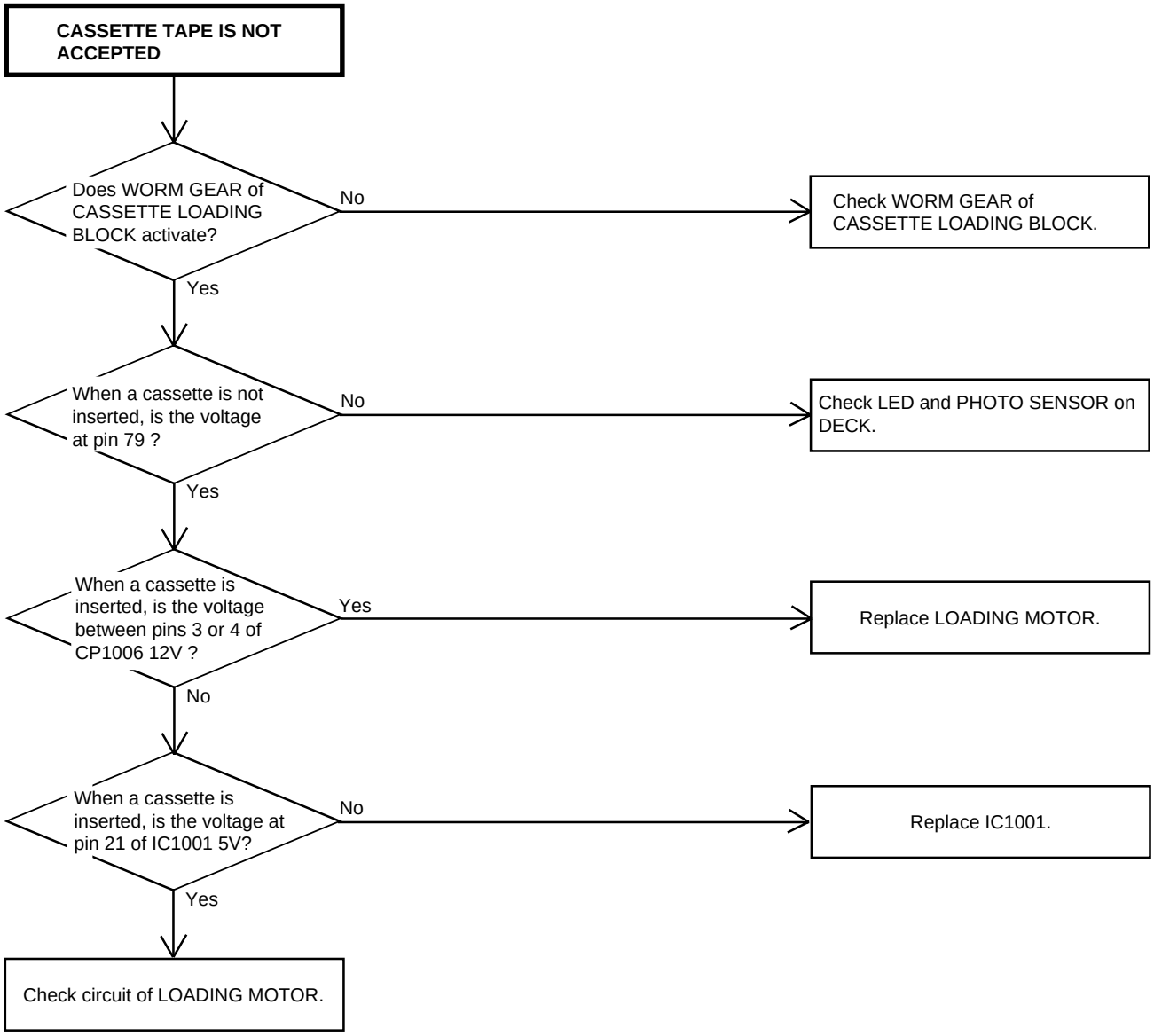

NO E-E (NO VIDEO AND AUDIO FROM TUNER)
Does J701 have a connection trouble ?
Yes
OPERATION PCB.
No
Do the following voltages appear on TU601, 30V at pin 9 and 5V at pin 7 ?
No
Check POWER BLOCK.
Yes
Does the set work normally after replacing TU601?
No
Replace TU601.
Yes
Is there voltage at pin 55 of IC601 9V ?
No
Check AT 25V line.
Yes
Is there VIDEO signal at pin 57 of IC601 ?
No
Check IC601 and peripheral circuit.
Yes
Check Y/C BLOCK.

TROUBLESHOOTING GUIDE

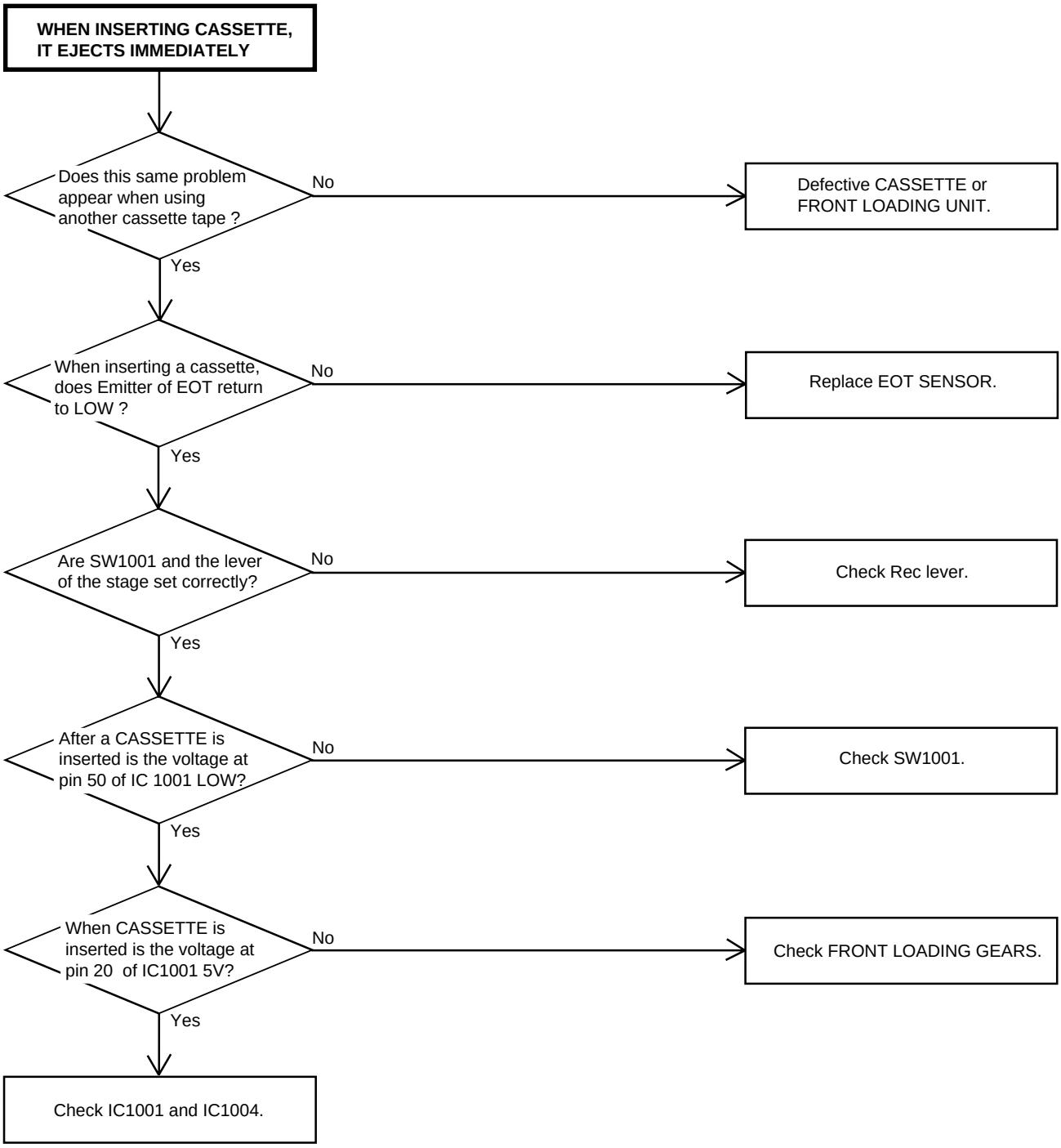

CYLINDER NOT ROTATING DURING PLAYBACK AND RECORDING
Is the voltage at pin 6 and 7 of CP1005 about DC2.6V ?
No
Check pins 4 and 5 of IC1004 lines.
Yes
In playback, is the voltage at pin 1, 2, 3 and 4 of CP1005 about DC6V ?
Yes
Replace CYLINDER MOTOR.
No
Replace IC1004.



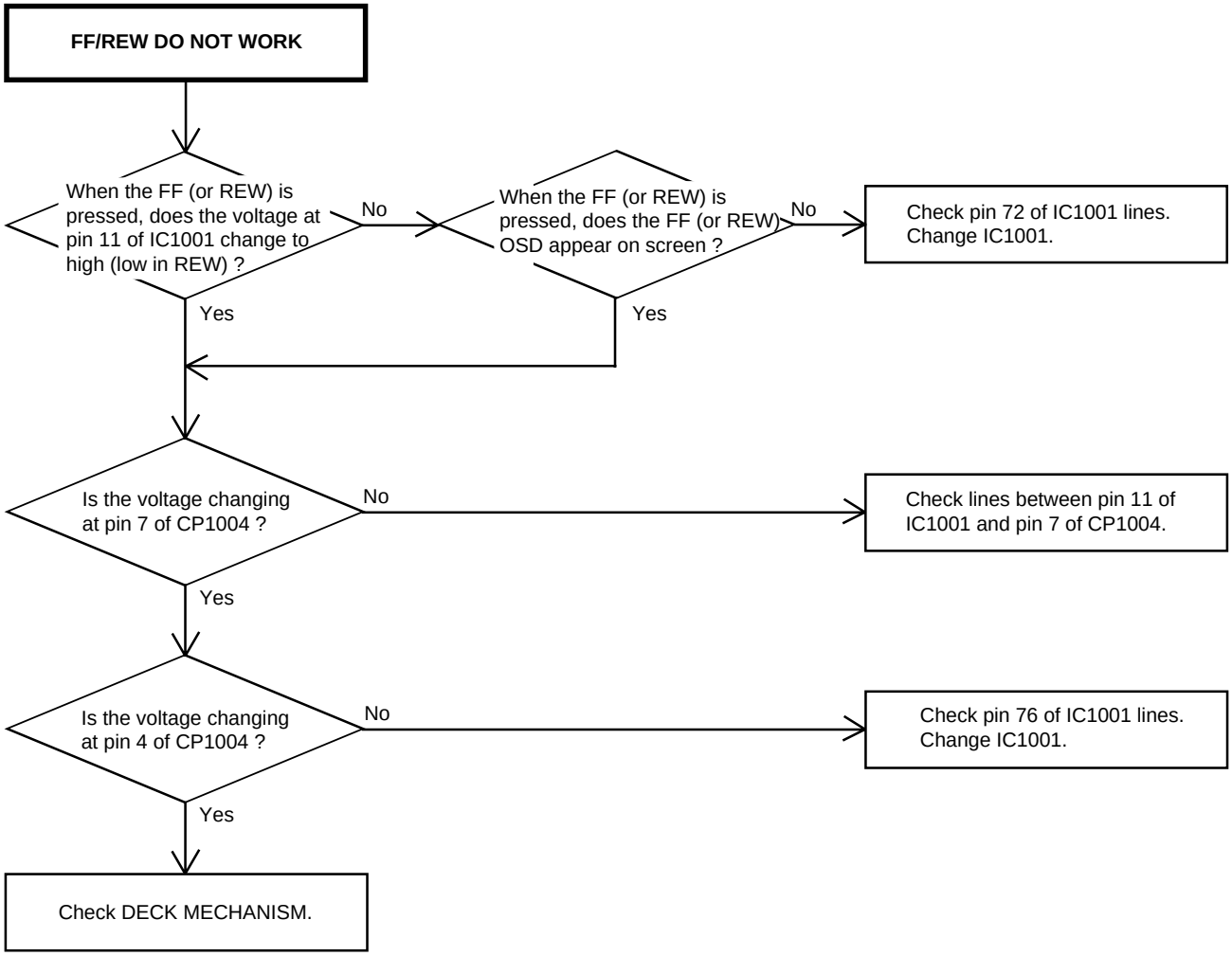
TROUBLESHOOTING GUIDE


CASSETTE TAPE IS NOT ACCEPTED
Does WORM GEAR of CASSETTE LOADING BLOCK activate?
No
Check WORM GEAR of CASSETTE LOADING BLOCK.
Yes
When a cassette is not inserted, is the voltage at pin 79 ?
No
Check LED and PHOTO SENSOR on DECK.
Yes
When a cassette is inserted, is the voltage between pins 3 or 4 of CP1006 12V ?
Yes
Replace LOADING MOTOR.
No
When a cassette is inserted, is the voltage at pin 21 of IC1001 5V?
No
Replace IC1001.
Yes
Check circuit of LOADING MOTOR.

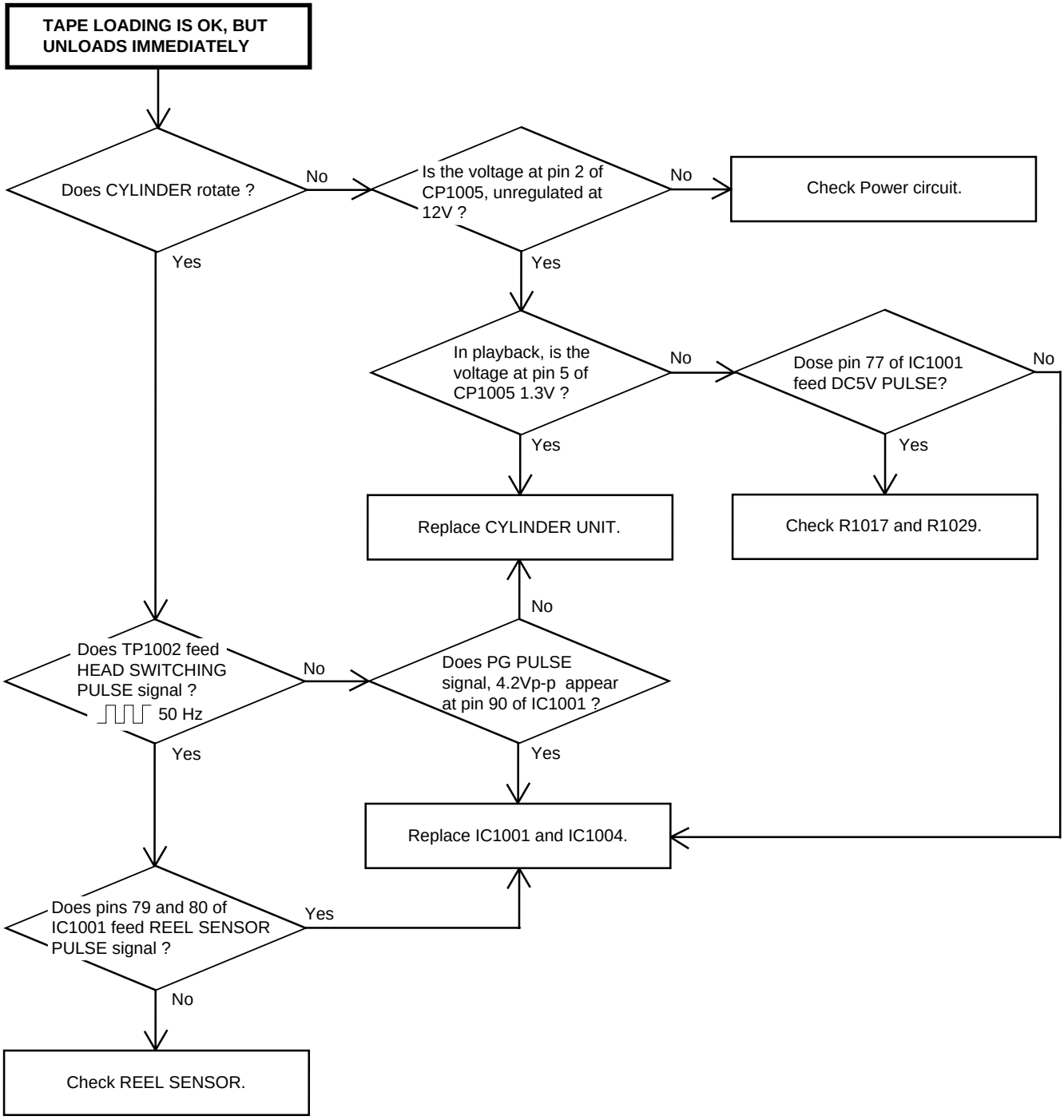
TROUBLESHOOTING GUIDE


WHEN INSERTING CASSETTE, IT EJECTS IMMEDIATELY
Does this same problem appear when using another cassette tape ?
No
Defective CASSETTE or FRONT LOADING UNIT.
Yes
When inserting a cassette, does Emitter of EOT return to LOW ?
No
Replace EOT SENSOR.
Yes
Are SW1001 and the lever of the stage set correctly?
No
Check Rec lever.
Yes
After a CASSETTE is inserted is the voltage at pin 50 of IC 1001 LOW?
No
Check SW1001.
Yes
When CASSETTE is inserted is the voltage at pin 20 of IC1001 5V?
No
Check FRONT LOADING GEARS.
Yes
Check IC1001 and IC1004.

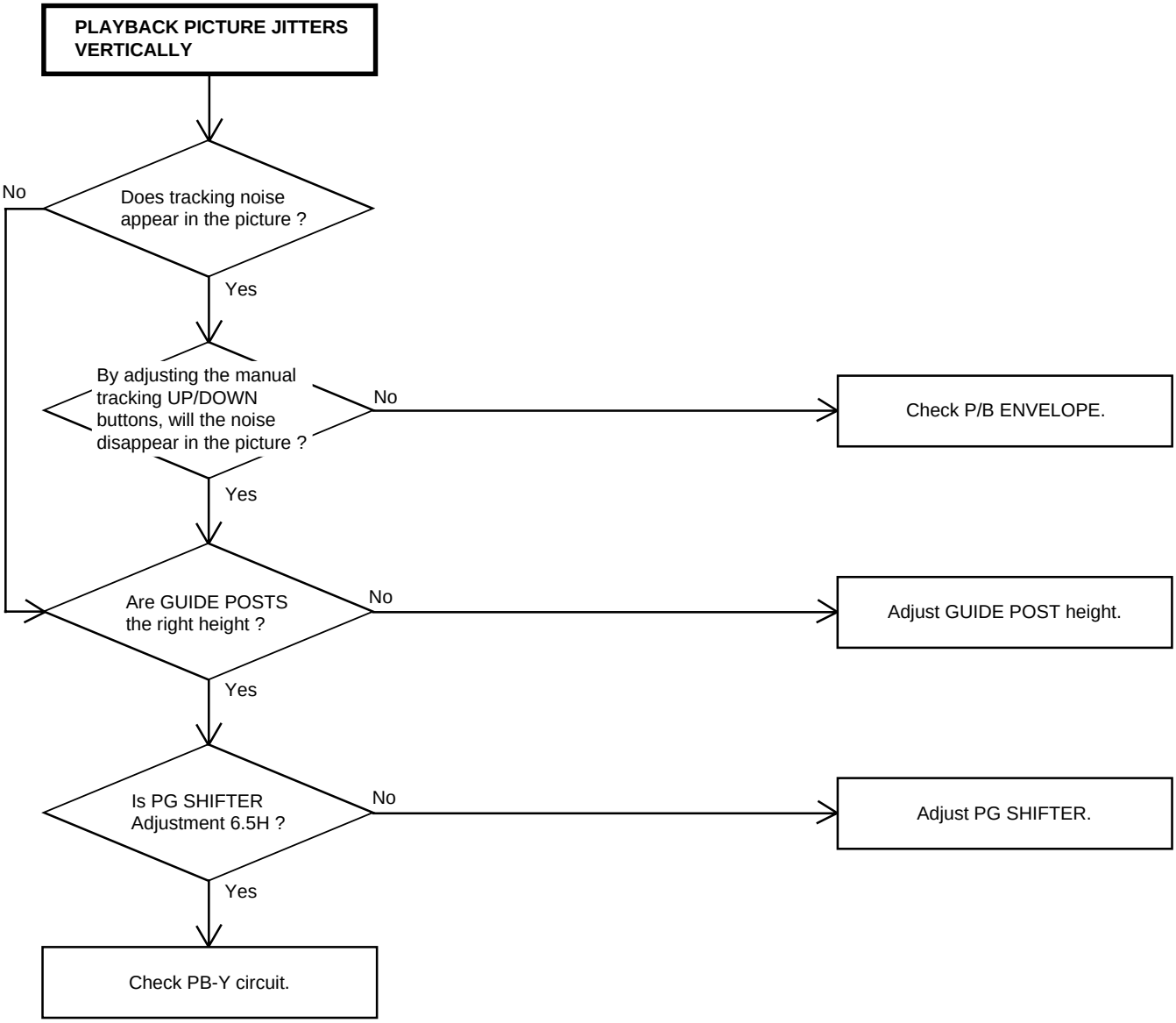
TROUBLESHOOTING GUIDE


FF/REW DO NOT WORK
When the FF (or REW) is pressed, does the voltage at pin 11 of IC1001 change to high (low in REW) ?
No
When the FF (or REW) is pressed, does the FF (or REW) OSD appear on screen ?
No
Check pin 72 of IC1001 lines. Change IC1001.
Yes
Yes
Is the voltage changing at pin 7 of CP1004 ?
No
Check lines between pin 11 of IC1001 and pin 7 of CP1004.
Yes
Is the voltage changing at pin 4 of CP1004 ?
No
Check pin 76 of IC1001 lines. Change IC1001.
Yes
Check DECK MECHANISM.

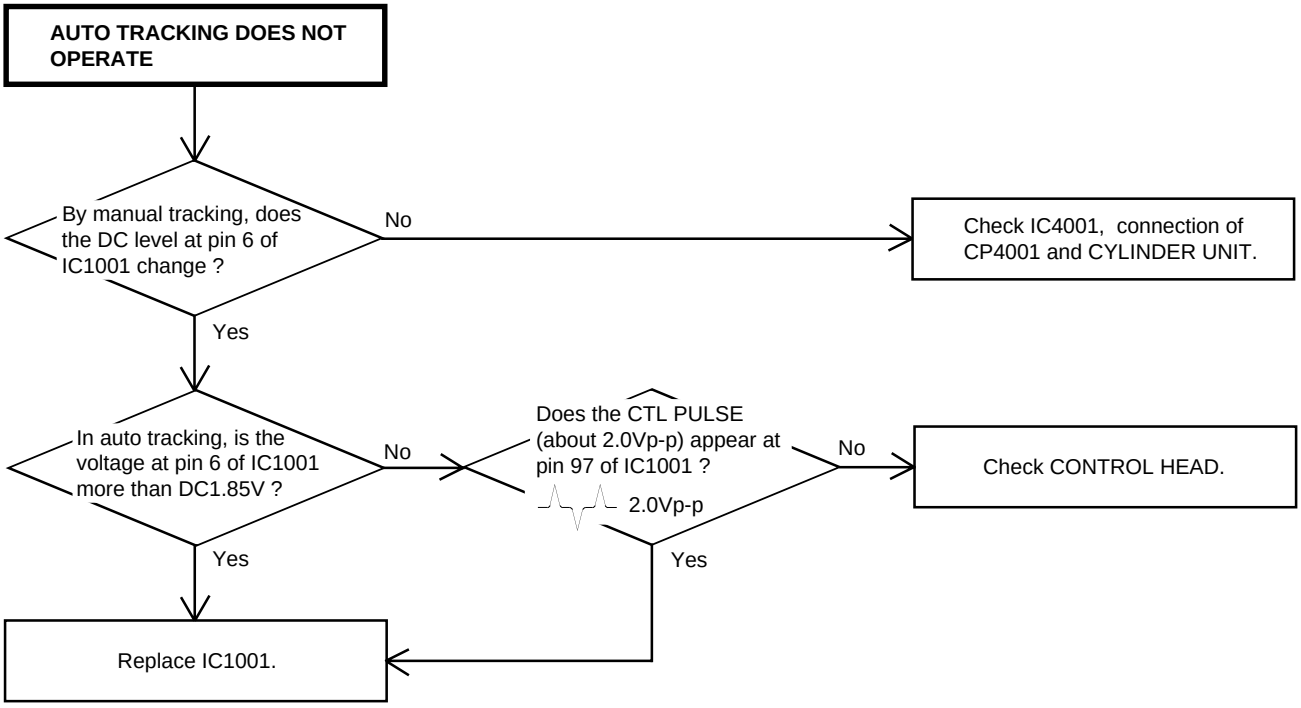
TROUBLESHOOTING GUIDE



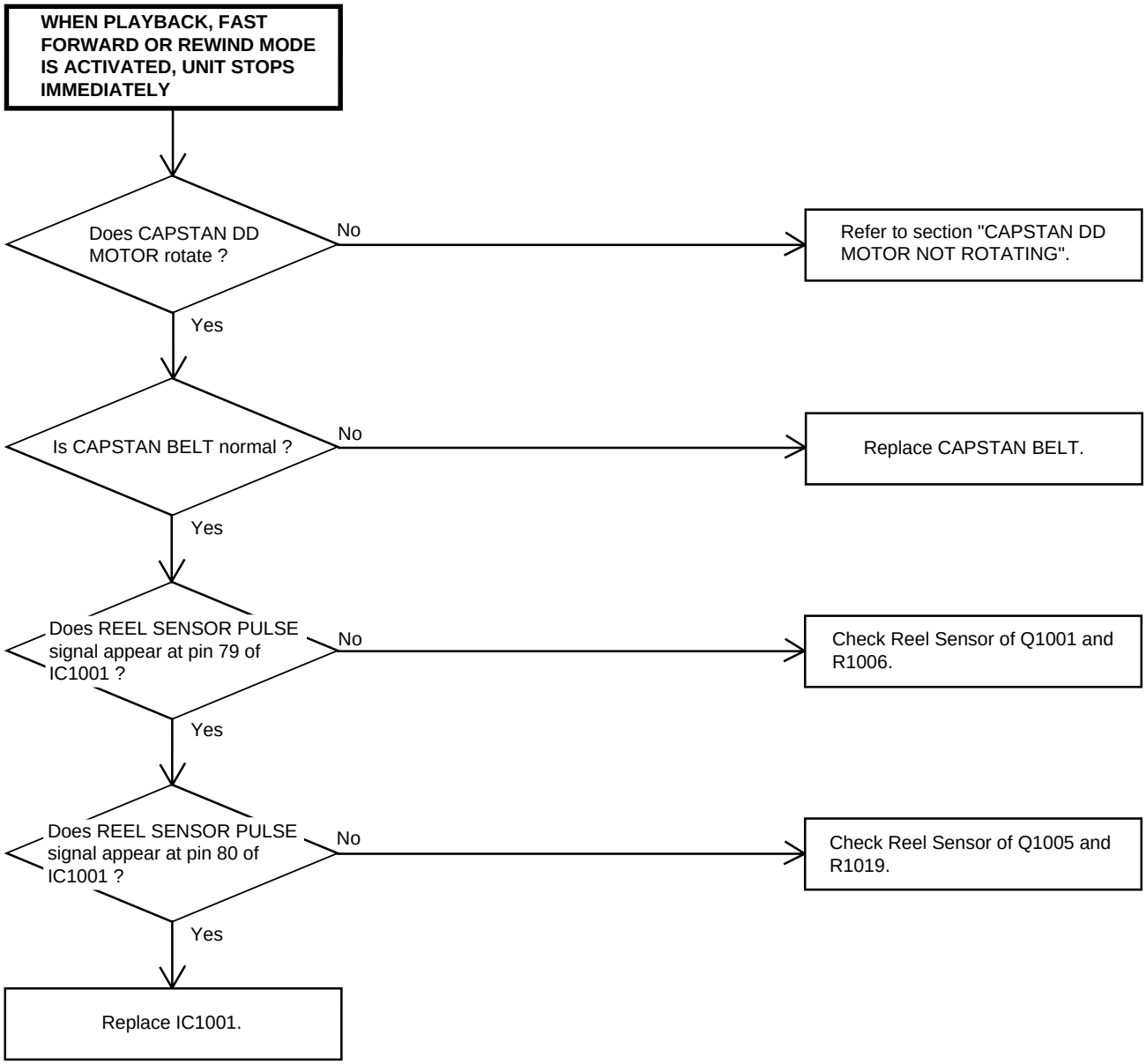
TROUBLESHOOTING GUIDE



TROUBLESHOOTING GUIDE


AUTO TRACKING DOES NOT OPERATE
By manual tracking, does the DC level at pin 6 of IC1001 change ?
No
Check IC4001, connection of CP4001 and CYLINDER UNIT.
Yes
In auto tracking, is the voltage at pin 6 of IC1001 more than DC1.85V ?
No
Does the CTL PULSE (about 2.0Vp-p) appear at pin 97 of IC1001 ?
2.0Vp-p
No
Check CONTROL HEAD.
Yes
Yes
Replace IC1001.

TROUBLESHOOTING GUIDE


WHEN PLAYBACK, FAST FORWARD OR REWIND MODE IS ACTIVATED, UNIT STOPS IMMEDIATELY
Does CAPSTAN DD MOTOR rotate ?
No
Refer to section "CAPSTAN DD MOTOR NOT ROTATING".
Yes
Is CAPSTAN BELT normal ?
No
Replace CAPSTAN BELT.
Yes
Does REEL SENSOR PULSE signal appear at pin 79 of IC1001 ?
No
Check Reel Sensor of Q1001 and R1006.
Yes
Does REEL SENSOR PULSE signal appear at pin 80 of IC1001 ?
No
Check Reel Sensor of Q1005 and R1019.
Yes
Replace IC1001.

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Southwest	:	10700 Hammerly, Suite 105, Houston,Texas 77043	(713)935-9331
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JVC

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PARTS LIST

CAUTION

- The parts identified by the ⚠ symbol are important for the safety . Whenever replacing these parts, be sure to use specified ones to secure the safety .
- The parts not indicated in this Parts List and those which are filled with lines --- in the Parts No. columns will not be supplied .
- P. W. Board Ass'y will not be supplied, but those which are filled with the Parts No. in the Parts No. columns will be supplied .

ABBREVIATIONS OF RESISTORS, CAPACITORS

RESISTOR

RC.....	CARBON RESISTOR

CAPACITORS

CC.....	CERAMIC CAPACITOR
CE.....	ALUMI ELECTROLYTIC CAPACITOR
CP.....	POLYESTER CAPACITOR
CPP.....	POLYPROPYLENE CAPACITOR
CPL.....	PLASTIC CAPACITOR
CMP.....	METAL POLYESTER CAPACITOR
CMPL.....	METAL PLASTIC CAPACITOR
CMPP.....	METAL POLYPROPYLENE CAPACITOR

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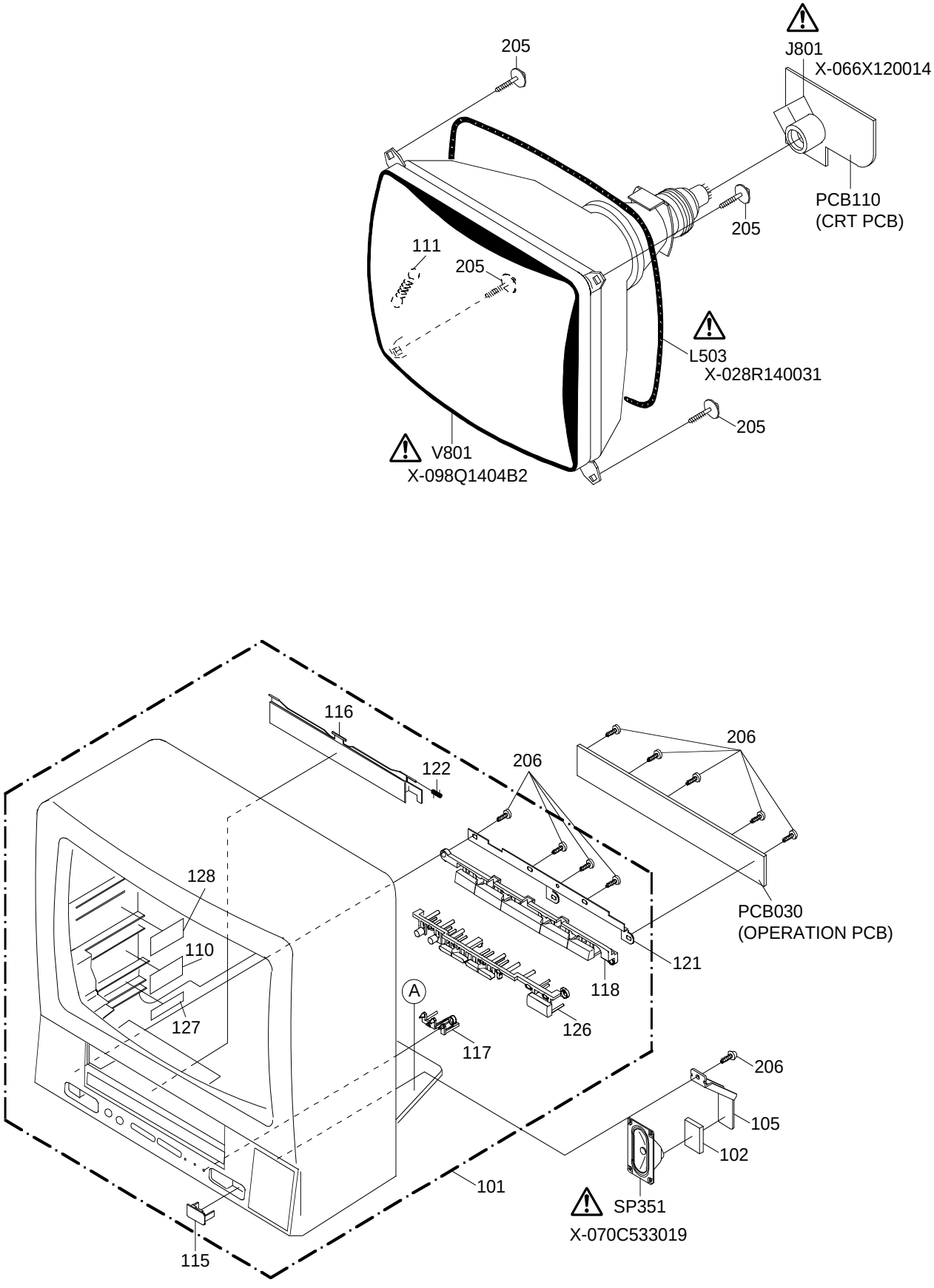
USING P.W. BOARD

Model / P.W.B ASS'Y	TV-13142	TV-13142W
SYSCON PCB ASS'Y	X-A58005A01A	X-A58006A01B
OPERATION PCB ASS'Y	X-A58005A03A	←
CRT PCB ASS'Y	X-A58005A11A	←

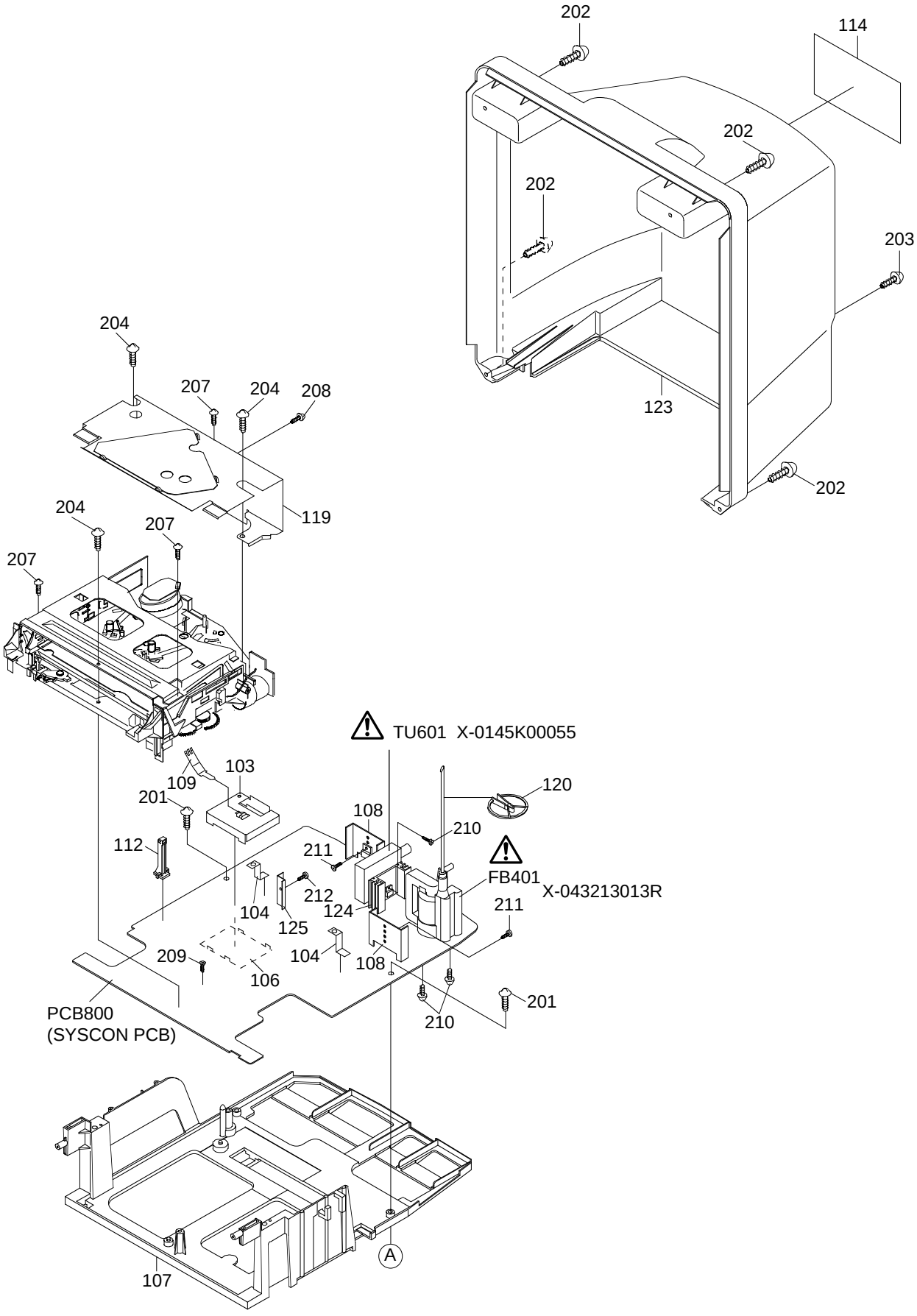
MECHANICAL REPLACEMENT PARTS LIST

REF. NO.	PART NO.	DESCRIPTION	
101	See Page67.	CABINET,FRONT ASSY	
102	X-800WFA0046	CUSHION	
103	X-752WSA0209	SHIELD,CASE HEAD AMP	
104	X-753WSA0118	PLATE,EARTH-SYSCON	
105	X-753WSA0119	PLATE,SPEAKER	
106	X-753WSA0130	SHIELD,COVER HEAD AMP	
107	X-761WPAA045	HOLDER,DECK	
108	X-763WSAA013	HEAT SINK	
109	X-753WUAA006	SPRING,EARTH HEAD AMP	
110	X-7260000324	SHEET,CRT SERVICEMAN	
111	X-741WUA0019	SPRING,EARTH	
112	X-85OP700036	HOLDER,EOT SENSOR	
114	See Page67.	SHEET,RATING	
115	X-711WPA0111	PLATE,FRONT	
116	See Page67.	FLAP	
117	X-713WPA0092	GLASS,LED	
118	See Page67.	BUTTON,FRAME	
119	X-752WSA0232	PLATE,DECK SHIELD ASS'Y	
120	X-899HV3T000	HOLDER,ANODE WIRE	
121	X-761WSA0051	FRAME,BUTTON	
122	X-743WKA0032	SPRING,FLAP	
123	See Page67.	CABINET,BACK	
124	X-763WAA0166	HEAT SINK	
125	X-763WSA0019	HEAT SINK	
126	See Page67.	BUTTON,CHANNEL/VOLUME	
127	X-722000A023	SHEET,HWC	
128	X-7220001119	SHEET,CSA WARNING	
201	X-8117540B04	SCREW,TAPPING(B0) TRUSS	4x20
202	X-8117540A64	SCREW,TAPPING(B0) TRUSS	4x16
203	X-8117540A04	SCREW,TAPPING(B0) TRUSS	4x10
204	X-8117140A24	SCREW,TAPPING(B0) PAN	4x12
205	X-8121F50B84	SCREW,TAPPING(BO) GW20FLAT	5x28
206	X-8110630A04	SCREW,TAP TITE(P) BRAZIER	3x10
207	X-8110630804	SCREW,TAP TITE(P) BRAZIER	3x8
208	X-8107226604	SCREW,TAP TITE(S) BIND	2.6x6
209	X-8110330804	SCREW,TAP TITE(P) FLAT	3x8
210	X-8109630802	SCREW,TAP TITE(B) BRAZIER	3x8
211	X-8109I30A04	SCREW,TAP TITE(B) WH7	3x10
212	X-8109I30604	SCREW,TAP TITE(B) WH7	3x6

MECHANICAL EXPLODED VIEW



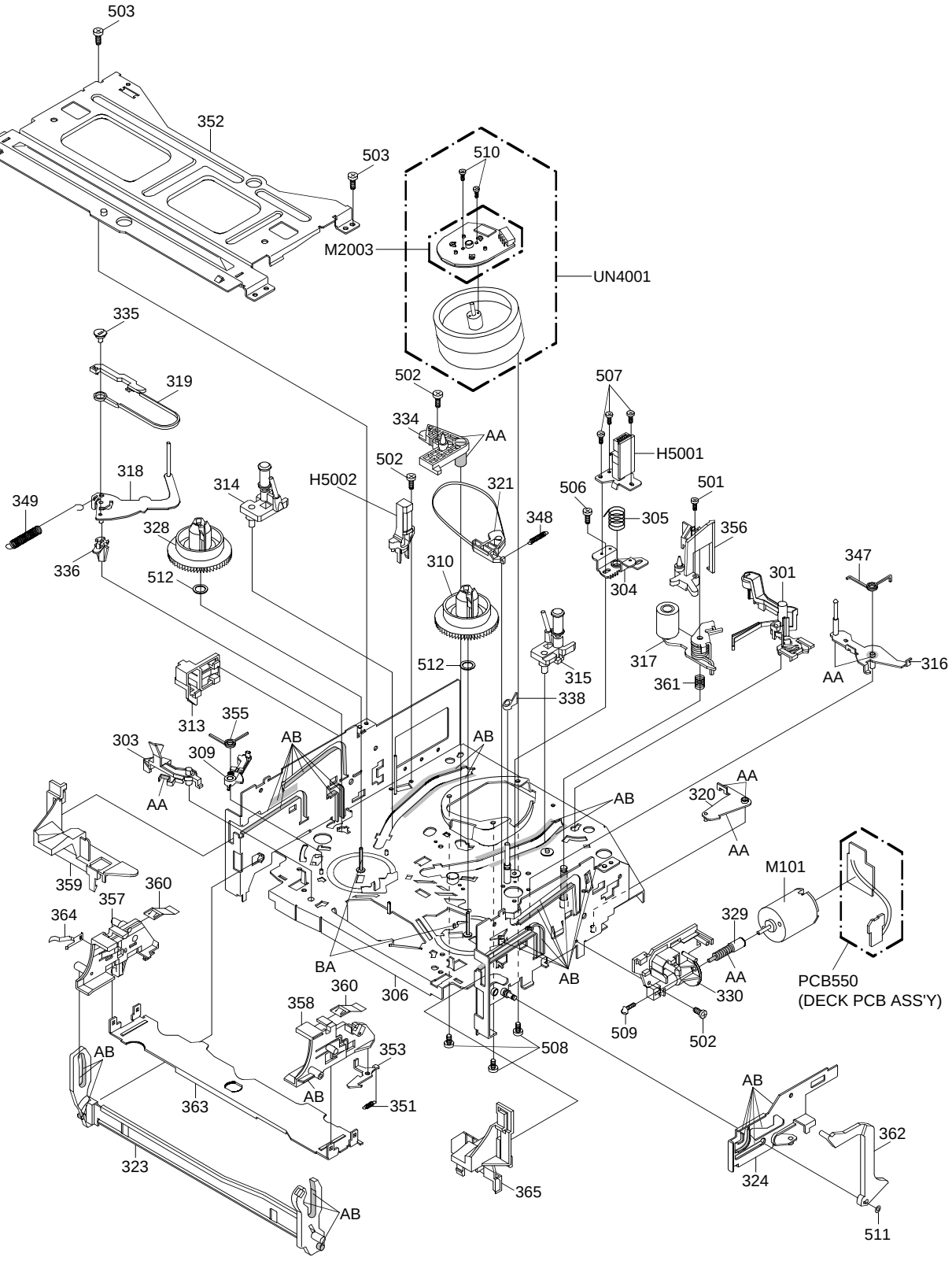
MECHANICAL EXPLODED VIEW



CHASSIS REPLACEMENT PARTS LIST

REF. NO.	PART NO.	DESCRIPTION	REF. NO.	PART NO.	DESCRIPTION	
			501	X-8107126A04	SCREW,TAP TITE(S) PAN	2.6x10
			502	X-8107226804	SCREW,TAP TITE(S) BIND	2.6x8
301	X-85OA500022	AHC ASS'Y	503	X-8107226604	SCREW,TAP TITE(S) BIND	2.6x6
302	X-85OP200290	BELT,CAPSTAN (S)	504	X-8109126604	SCREW,TAP TITE(B) PAN	2.6x6
303	X-85OP900710	LEVER,REC	505	X-83ETW30000	E-RING	3.0
304	X-85OP500083	BASE,AC HEAD	506	X-8107226404	SCREW,TAP TITE(S) BIND	2.6x4
305	X-85OP800324	SPRING,AC HEAD	507	X-8102120604	SCREW,PAN	M2x6
306	X-85OA000449	MAIN CHASSIS ASS'Y (3V)	508	X-810A126504	SCREW/WASHER(A)	M2.6x5
307	X-85OA200082	CLUTCH ASS'Y(S2)	509	X-810A130504	SCREW/WASHER(A)	M3x5
308	X-85OA200088	ARM,IDLER ASS'Y 3V				
309	X-85OP600556	ARM,SS BRAKE (S)	510	X-8107226504	SCREW, TAP TITE(S) BIND	BIND2.6x5
			511	X-82P266005N	POLYSLIDER WASHER(CUT)	2.6x6.0xT0.5
310	X-85OP200292	REEL,T (S)	512	X-82Q2647C5N	POLYSLIDER WASHER	2.6x4.7xT0.25
311	X-85OA300061	LOADING ARM S ASS'Y	513	X-82P184505N	POLYSLIDER WASHER(CUT)	1.8x4.5xT0.5
312	X-85OA300062	LOADING ARM T ASS'Y				
313	X-85OP900714	COVER,SENSOR L3	CP101	X-069R740018	CONNECTOR PCB SIDE	52044-0445
314	X-85OA400220	INCLINED BASE S UNIT 3V	H5001	X-1523D91034	HEAD (AUDIO CONTROL)	HVMXA1072A
315	X-85OA400221	INCLINED BASE T UNIT 3V	H5002	X-1543D02013	HEAD (FULL ERASE)	HVFHP0032A
316	X-85OA400199	P5-3 ARM ASS'Y(S)	⚠ M101	X-1596P78001	MOTOR (LOADING)	MXN13FB11H
317	X-85OA400205	PINCH ROLLER BLOCK	⚠ M2001	X-1594S98001	CAPSTAN DD UNIT	F2QSB36
318	X-85OA400175	TENSION ARM ASS'Y	⚠ M2003	X-1589S11015	MICRO MOTOR	I2OAL03
319	X-85OA400216	TENSION BAND ASS'Y 3V	PCB550	X-A4C831B550	DECK PCB ASS'Y	VE8851
			Q101	X-0000700320	TRANSISTOR,PHOTO	RPT-38PB113
320	X-85OA400178	PINCH ROLLER LEVER ASS'Y	⚠ UN4001	X-A4E304B500	CYLINDER UNIT ASSY	A4E304B500
321	X-85OA600197	BRAKE T ASS'Y 3V				
322	X-85OP500087	HOLDER,SPRING(SV)				
323	X-85OA900223	LINK UNIT(SV)				
324	X-85OP900716	LEVER,LINK(SV)				
325	X-85OP200284	LEVER,CLUTCH (S)				
326	X-85OP200285	ACTUATOR,CLUTCH				
327	X-85OP200298	GEAR,COUPLING(S2)				
328	X-85OP200291	REEL,S (S)				
329	X-85OP600566	WORM(SV)				
330	X-85OP600567	BRACKET,MOTOR(SV)				
331	X-85OP300193	GEAR,MAIN LOADING				
332	X-85OP300179	GEAR,LOADING S				
333	X-85OP300180	GEAR,LOADING T				
334	X-85OP300189	HOLDER,LOADING GEAR (S-ZV)				
335	X-85OP400472	ADJUST,TENSION				
336	X-85OP400492	HOLDER,TENSION				
337	X-85OP400490	LEVER,TENSION				
338	X-85OP400520	CAP.P4				
339	X-85OP600543	GEAR,JOINT				
340	X-85OP600544	GEAR,MIDDLE				
341	X-85OP600572	CAM,MAIN(S)				
342	X-85OP600546	CAM,P5				
343	X-85OP600565	CAM,PINCH ROLLER				
344	X-85OP600561	ROD,MAIN(S)				
345	X-85OP700035	REFLECTOR,LED				
346	X-85OP800318	SPRING,LOADING GEAR				
347	X-85OP800334	SPRING,P5 (S)				
348	X-85OP800335	SPRING,BRAKE T (S)				
349	X-85OP800322	SPRING,TENSION				
350	X-85OP800336	SPRING,CAP BRAKE (S)				
351	X-85OP800342	SPRING,LOCKER (S)				
352	X-85OP900695	BRACKET,TOP				
353	X-85OP900713	LOCKER,R2				
354	X-85OP800330	SPRING,RING				
355	X-85OP800337	SPRING,SS BRAKE (S)				
356	X-85OP900680	OPENER,CASS				
357	X-85OP900722	CASS SIDE L(SV)				
358	X-85OP900723	CASS SIDE R(SV)				
359	X-85OP900728	TAPE GUIDE L(P,R)				
360	X-85OP900694	SPRING,PACK				
361	X-85OP800341	SPRING,P/R ARM				
362	X-85OP900688	LEVER,FLAP				
363	X-85OP900717	CASS HOLDER(SV)				
364	X-85OP900696	SPRING,CASS EARTH				
365	X-85OP900729	TAPE GUIDE R				

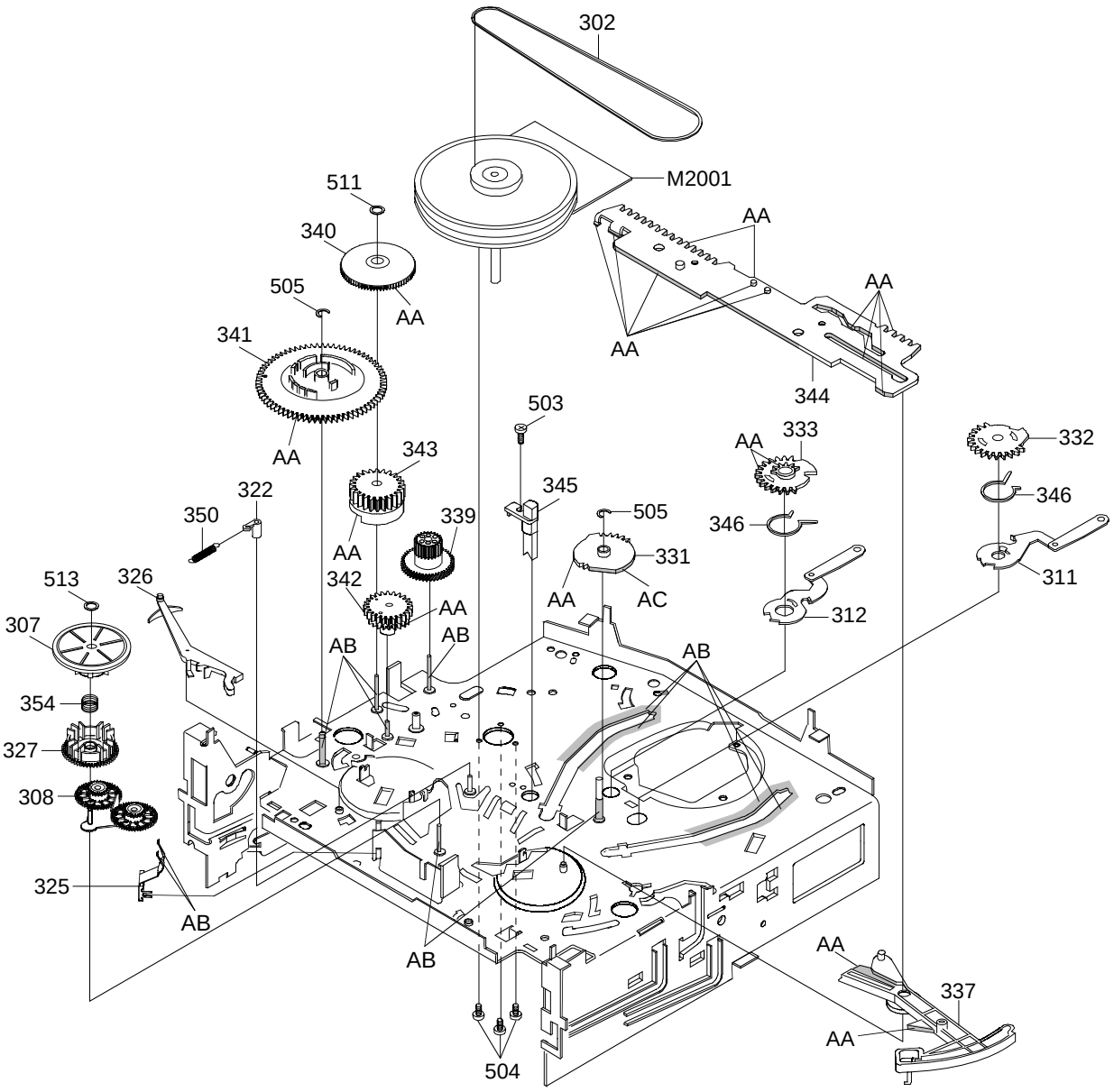
CHASSIS EXPLODED VIEW (TOP VIEW)



CLASS	PART NO.	MARK
GREASE	G-555G	AA
	MG-33	AB
	FL-721	AC
OIL	FL OIL No. 6115	BA

NOTE: Applying positions AA, AB, AC and BA for the grease or oil are displayed for this section. Check if the correct grease or oil is applied for each position.

CHASSIS EXPLODED VIEW (BOTTOM VIEW)



CLASS	PART NO.	MARK
GREASE	G-555G	AA
	MG-33	AB
	FL-721	AC
OIL	FL OIL No. 6115	BA

NOTE: Applying positions AA, AB, AC and BA for the grease or oil are displayed for this section. Check if the correct grease or oil is applied for each position.

ELECTRICAL REPLACEMENT PARTS LIST

REF. NO.	PART NO.	DESCRIPTION		REF. NO.	PART NO.	DESCRIPTION	
		RESISTORS				**RESISTORS**	
R352	X-R903N8472J	RC	4.7K OHM 1/8W	R632	X-R3X18A221J	R,METAL OXIDE	220 OHM 2W
R353	X-R903N8683J	RC	68K OHM 1/8W	R633	X-R903N8822J	RC	8.2K OHM 1/8W
R357	X-R903N8562J	RC	5.6K OHM 1/8W	R634	X-R903N8101J	RC	100 OHM 1/8W
R359	X-R903N8473J	RC	47K OHM 1/8W	R635	X-R903N8101J	RC	100 OHM 1/8W
R380	X-R002T2330J	RC	33 OHM 1/2W	R636	X-R903N8101J	RC	100 OHM 1/8W
R381	X-R001T4330J	RC	33 OHM 1/4W	R638	X-R801R7822J	RC	8.2K OHM 1/10W
R401	X-R903N8471J	RC	470 OHM 1/8W	R639	X-R903N8123J	RC	12K OHM 1/8W
R402	X-R903N8473J	RC	47K OHM 1/8W	R640	X-R002T2100J	RC	10 OHM 1/2W
R410	X-R002T4332J	RC	3.3K OHM 1/4W	R641	X-R903N8223J	RC	22K OHM 1/8W
R411	X-R801R7333F	RC	33K OHM 1/10W	R642	X-R903N8562J	RC	5.6K OHM 1/8W
R413	X-R903N8182J	RC	1.8K OHM 1/8W	R643	X-R903N8473J	RC	47K OHM 1/8W
R414	X-R903N8123J	RC	12K OHM 1/8W	R644	X-R903N8101J	RC	100 OHM 1/8W
⚠ R415	X-R002T22R2J	RC	2.2 OHM 1/2W	R646	X-R903N8273J	RC	27K OHM 1/8W
R416	X-R903N8823J	RC	82K OHM 1/8W	R647	X-R903N8222J	RC	2.2K OHM 1/8W
R419	X-R002T2331J	RC	330 OHM 1/2W	R648	X-R903N8222J	RC	2.2K OHM 1/8W
⚠ R420	X-R801R7822F	RC	8.2K OHM 1/10W	R649	X-R903N8222J	RC	2.2K OHM 1/8W
R421	X-R002T2681J	RC	680 OHM 1/2W	R650	X-R002T4471J	RC	470 OHM 1/4W
R423	X-R001T4103J	RC	10K OHM 1/4W	R651	X-R002T2100J	RC	10 OHM 1/2W
R424	X-R002T2222J	RC	2.2K OHM 1/2W	R652	X-R903N8472J	RC	4.7K OHM 1/8W
⚠ R439	X-R801R7223F	RC	22K OHM 1/10W	R654	X-R002T2821J	RC	820 OHM 1/2W
⚠ R440	X-R903N8513J	RC	51K OHM 1/8W	R655	X-R801R7272J	RC	2.7K OHM 1/10W
⚠ R441	X-R903N8563J	RC	56K OHM 1/8W	R656	X-R903N8102J	RC	1K OHM 1/8W
⚠ R442	X-R801R7183F	RC	18K OHM 1/10W	R657	X-R903N8102J	RC	1K OHM 1/8W
⚠ R444	X-R801R7393F	RC	39K OHM 1/10W	R658	X-R903N8152J	RC	1.5K OHM 1/8W
⚠ R447	X-R65582680J	R,FUSE	68 OHM 1/2W	R659	X-R903N8152J	RC	1.5K OHM 1/8W
R449	X-R65584101J	R,FUSE	100 OHM 1/4W	R660	X-R903N8152J	RC	1.5K OHM 1/8W
⚠ R450	X-R655814R7J	R,FUSE	4.7 OHM 1W	R663	X-R801R7101J	RC	100 OHM 1/10W
R453	X-R002T4224J	RC	220K OHM 1/4W	R665	X-R903N8154J	RC	150K OHM 1/8W
R454	X-R002T4333J	RC	33K OHM 1/4W	R668	X-R002T4471J	RC	470 OHM 1/4W
R456	X-R002T2472J	RC	4.7K OHM 1/2W	R669	X-R903N8471J	RC	470 OHM 1/8W
R460	X-R002T4101J	RC	100 OHM 1/4W	R676	X-R801R7102J	RC	1K OHM 1/10W
R490	X-R002T4683J	RC	68K OHM 1/4W	R678	X-R002T4472J	RC	4.7K OHM 1/4W
⚠ R500	X-R0G3K2275K	RC	2.7M OHM 1/2W	R683	X-R903N8101J	RC	100 OHM 1/8W
⚠ R501	X-R5Y2CD2R2J	R,CEMENT	2.2 OHM 5W	R686	X-R002T2152J	RC	1.5K OHM 1/2W
R502	X-R002T44R7J	RC	4.7 OHM 1/4W	R701	X-R002T4750J	RC	75 OHM 1/4W
R503	X-R002T4332J	RC	3.3K OHM 1/4W	R754	X-R001T6271J	RC	270 OHM 1/6W
R504	X-R002T2124J	RC	120K OHM 1/2W	R771	X-R001T6102J	RC	1K OHM 1/6W
R505	X-R002T4331J	RC	330 OHM 1/4W	R772	X-R001T6152J	RC	1.5K OHM 1/6W
R506	X-R903N8222J	RC	2.2K OHM 1/8W	R773	X-R001T6272J	RC	2.7K OHM 1/6W
R508	X-R002T2563J	RC	56K OHM 1/2W	R774	X-R001T6682J	RC	6.8K OHM 1/6W
⚠ R510	X-R002T2124J	RC	120K OHM 1/2W	R775	X-R001T6821J	RC	820 OHM 1/6W
⚠ R512	X-R002T2563J	RC	56K OHM 1/2W	R776	X-R001T6102J	RC	1K OHM 1/6W
R516	X-R903N8103J	RC	10K OHM 1/8W	R777	X-R001T6152J	RC	1.5K OHM 1/6W
R519	X-R801R7473J	RC	47K OHM 1/10W	R778	X-R001T6821J	RC	820 OHM 1/6W
⚠ R520	X-R3X28AR82J	R.METAL	0.82 OHM 2W	R780	X-R001T6272J	RC	2.7K OHM 1/6W
R521	X-R801R7562J	RC	5.6K OHM 1/10W	R781	X-R001T6223J	RC	22K OHM 1/6W
R522	X-R002T4101J	RC	100 OHM 1/4W	R782	X-R001T6682J	RC	6.8K OHM 1/6W
⚠ R529	X-R4X5T4272F	R,METAL	2.7K OHM 1/4W	R783	X-R001T6223J	RC	22K OHM 1/6W
R532	X-R002T4472J	RC	4.7K OHM 1/4W	R793	X-R001T6271J	RC	270 OHM 1/6W
R533	X-R002T4472J	RC	4.7K OHM 1/4W	R794	X-R001T6271J	RC	270 OHM 1/6W
⚠ R542	X-R33681R18J	R,METAL	0.18OHM 1W	⚠ R802	X-R3X181123J	R,METAL	12K OHM 1W
⚠ R543	X-R635U4681J	R,FUSE	680 OHM 1/4W	⚠ R805	X-R3X181123J	R,METAL	12K OHM 1W
R553	X-R002T2393J	RC	39K OHM 1/2W	R807	X-R001T4272J	RC	2.7K OHM 1/4W
R554	X-R002T4223J	RC	22K OHM 1/4W	R808	X-R001T4272J	RC	2.7K OHM 1/4W
R601	X-R903N8222J	RC	2.2K OHM 1/8W	⚠ R810	X-R3X181123J	R,METAL	12K OHM 1W
R602	X-R801R7101J	RC	100 OHM 1/10W	R811	X-R903N8391J	RC	390 OHM 1/8W
R603	X-R801R7101J	RC	100 OHM 1/10W	R812	X-R903N8391J	RC	390 OHM 1/8W
				R813	X-R903N8391J	RC	390 OHM 1/8W
R607	X-R002T2102J	RC	1K OHM 1/2W	R814	X-R903N8472J	RC	4.7K OHM 1/8W
R608	X-R903N8103J	RC	10K OHM 1/8W	R815	X-R903N8472J	RC	4.7K OHM 1/8W
R609	X-R903N8681J	RC	680 OHM 1/8W	R816	X-R903N8472J	RC	4.7K OHM 1/8W
R610	X-R903N8105J	RC	1M OHM 1/8W	R820	X-R001T4272J	RC	2.7K OHM 1/4W
R612	X-R002T4681J	RC	680 OHM 1/4W	R1001	X-R903N8332J	RC	3.3K OHM 1/8W
R613	X-R903N8123J	RC	12K OHM 1/8W	R1002	X-R903N8271J	RC	270 OHM 1/8W
R614	X-R903N8184J	RC	180K OHM 1/8W	R1003	X-R903N8823J	RC	82K OHM 1/8W
R615	X-R903N8471J	RC	470 OHM 1/8W	R1005	X-R903N8272J	RC	2.7K OHM 1/8W
R616	X-R903N8102J	RC	1K OHM 1/8W	R1007	X-R903N8220J	RC	22 OHM 1/8W
R618	X-R801R7106J	RC	10M OHM 1/10W	R1008	X-R002T4102J	RC	1K OHM 1/4W
R620	X-R903N8101J	RC	100 OHM 1/8W	R1009	X-R903N8561J	RC	560 OHM 1/8W
				R1011	X-R903N8222J	RC	2.2K OHM 1/8W
R622	X-R903N8331J	RC	330 OHM 1/8W	R1012	X-R903N8103J	RC	10K OHM 1/8W
R624	X-R903N8202J	RC	2K OHM 1/8W	R1013	X-R903N8561J	RC	560 OHM 1/8W
R625	X-R903N8103J	RC	10K OHM 1/8W	R1017	X-R903N8393J	RC	39K OHM 1/8W
R626	X-R903N8103J	RC	10K OHM 1/8W	R1018	X-R903N8472J	RC	4.7K OHM 1/8W
R627	X-R903N8123J	RC	12K OHM 1/8W	R1019	X-R903N8473J	RC	47K OHM 1/8W
R628	X-R903N8101J	RC	100 OHM 1/8W	R1020	X-R903N8223J	RC	22K OHM 1/8W
R631	X-R903N8472J	RC	4.7K OHM 1/8W	R1021	X-R903N8100J	RC	10 OHM 1/8W

ELECTRICAL REPLACEMENT PARTS LIST

REF. NO.	PART NO.	DESCRIPTION		REF. NO.	PART NO.	DESCRIPTION	
		RESISTORS				**RESISTORS**	
R1025	X-R903N8101J	RC	100 OHM 1/8W	R4059	X-R801R7106J	RC	10M OHM 1/10W
R1028	X-R903N8223J	RC	22K OHM 1/8W	R4060	X-R801R7155J	RC	1.5M OHM 1/10W
R1029	X-R903N8472J	RC	4.7K OHM 1/8W	R4061	X-R801R7106J	RC	10M OHM 1/10W
R1031	X-R903N8102J	RC	1K OHM 1/8W	R4062	X-R801R7335J	RC	3.3M OHM 1/10W
R1032	X-R903N8103J	RC	10K OHM 1/8W	R4064	X-R801R7682J	RC	6.8K OHM 1/10W
R1033	X-R903N8102J	RC	1K OHM 1/8W	R4068	X-R801R7225J	RC	2.2M OHM 1/10W
R1034	X-R903N8105J	RC	1M OHM 1/8W			**CAPACITORS**	
R1035	X-R903N8100J	RC	10 OHM 1/8W	C301	X-CS0RB04H4K	CC	0.022 UF 50V B
R1036	X-R903N8472J	RC	4.7K OHM 1/8W	C351	X-E02LU52R2M	CE	2.2 UF 50V
R1038	X-R903N8221J	RC	220 OHM 1/8W	C354	X-E02L02222M	CE	2200 UF 16V
R1039	X-R903N8183J	RC	18K OHM 1/8W	C355	X-E02LU5100M	CE	10 UF 50V
R1040	X-R903N8333J	RC	33K OHM 1/8W	C356	X-E5EZU5100M	CE	10 UF 50V
R1042	X-R903N8221J	RC	220 OHM 1/8W	C357	X-CS0RB04H4K	CC	0.022 UF 50V B
R1044	X-R903N8332J	RC	3.3K OHM 1/8W	C381	X-CHGTF03H4Z	CC	0.022 UF 25V F
R1045	X-R903N8332J	RC	3.3K OHM 1/8W	C382	X-E50HU2470M	CE	47 UF 16V
R1046	X-R903N8472J	RC	4.7K OHM 1/8W	C402	X-E02L04102M	CE	1000 UF 35V
R1047	X-R903N8472J	RC	4.7K OHM 1/8W	C405	X-E5EZU5010M	CE	1 UF 50V
R1048	X-R903N8103J	RC	10K OHM 1/8W	C406	X-E5EZT4101M	CE	100 UF 35V
R1049	X-R903N8472J	RC	4.7K OHM 1/8W	⚠ C407	X-E02L03102M	CE	1000 UF 25V
R1050	X-R903N8101J	RC	100 OHM 1/8W	C408	X-E5EZT5220M	CE	22 UF 50V
R1051	X-R903N8183J	RC	18K OHM 1/8W	C417	X-C0JTB0513K	CC	0.001 UF 500V B
R1052	X-R903N8391J	RC	390 OHM 1/8W	C418	X-E5EZU5220M	CE	22 UF 50V
R1053	X-R903N8221J	RC	220 OHM 1/8W	C422	X-E5EZTD010M	CE	1 UF 250V
R1054	X-R903N8564J	RC	560K OHM 1/8W	C423	X-P4J7F3394J	CMPP	0.39 UF 250V PMS
R1064	X-R002T4102J	RC	1K OHM 1/4W	⚠ C424	X-P4N8FJ822H	CMPP	C 0.0082UF 1.25KV
R1066	X-R903N8102J	RC	1K OHM 1/8W	⚠ C425	X-C0JLYR7U2K	CC	680 PF 2KV YR
R1073	X-R002T4010J	RC	1 OHM 1/4W	⚠ C431	X-E02LTD100M	CE	10 UF 250V
R1075	X-R903N8472J	RC	4.7K OHM 1/8W	C432	X-E02LT50R1M	CE	0.1 UF 50V
R1079	X-R002T4220J	RC	22 OHM 1/4W	⚠ C433	X-E02LT3331M	CE	330 UF 25V
R1080	X-R00104010J	RC	1 OHM 1/4W	C438	X-C0JTB0513K	CC	0.001 UF 500V B
R1082	X-R903N8152J	RC	1.5K OHM 1/8W	⚠ C502	X-C0JTB0513K	CC	0.001 UF 500V B
R1083	X-R903N8333J	RC	33K OHM 1/8W	⚠ C503	X-C0JTB0513K	CC	0.001 UF 500V B
R1084	X-R801R7102J	RC	1K OHM 1/10W	C505	X-C0JTB05Q2K	CC	470 PF 500V B
R1087	X-R903N8333J	RC	33K OHM 1/8W	⚠ C506	X-P2122B224M	CMP	0.22 UF 250V ECQUL
R4001	X-R903N8561J	RC	560 OHM 1/8W	⚠ C507	X-E51CGC471M	CE	470 UF 200V
R4002	X-R903N8103J	RC	10K OHM 1/8W	C509	X-CS0RF0414Z	CC	0.01 UF 50V F
R4003	X-R903N8103J	RC	10K OHM 1/8W	⚠ C510	X-E5EZT4101M	CC	100 UF 35V
R4004	X-R002T4150J	RC	15 OHM 1/4W	⚠ C511	X-E5EZT3471M	CC	470 UF 25V
R4006	X-R002T4473J	RC	47K OHM 1/4W	C512	X-CS0RB0413K	CC	0.001 UF 50V B
R4007	X-R002T4393J	RC	39K OHM 1/4W	C514	X-C0JLYR7K3K	CC	0.0027UF 2KV YR
R4010	X-R903N8332J	RC	3.3K OHM 1/8W	C515	X-CS0RB04H3K	CC	0.0022UF 50V B
R4011	X-R903N8223J	RC	22K OHM 1/8W	C516	X-C0JTB05Q2K	CC	470 PF 500V B
R4012	X-R903N8821J	RC	820 OHM 1/8W	C517	X-C0JLYR7W2K	CC	820 PF 2KV YR
R4015	X-R801R72R2J	RC	2.2 OHM 1/10W	C518	X-C0JTB05Q2K	CC	470 PF 500V B
R4017	X-R903N8682J	RC	6.8K OHM 1/8W	C519	X-C0JTB05Q2K	CC	470 PF 500V B
R4018	X-R903N8123J	RC	12K OHM 1/8W	⚠ C521	X-E62NFB101M	CE	100 UF 160V
R4019	X-R903N8334J	RC	330K OHM 1/8W	⚠ C522	X-E5EZTB010M	CE	1 UF 160V
R4020	X-R903N8181J	RC	180 OHM 1/8W	⚠ C523	X-E5EZT4471M	CE	470 UF 35V
R4021	X-R903N8223J	RC	22K OHM 1/8W	⚠ C524	X-E5EZT2102M	CE	1000 UF 16V
R4022	X-R903N8821J	RC	820 OHM 1/8W	C525	X-E02LU1471M	CE	470 UF 10V
R4023	X-R903N8333J	RC	33K OHM 1/8W	⚠ C530	X-C034F0JQ3M	CC	0.0047UF 125V MX
R4024	X-R903N8562J	RC	5.6K OHM 1/8W	C531	X-E5EZT5100M	CE	10 UF 50V
R4025	X-R903N8152J	RC	1.5K OHM 1/8W	C534	X-E5EZT2102M	CE	1000 UF 16V
R4026	X-R903N8393J	RC	39K OHM 1/8W	C535	X-C0JLYR7U2K	CC	680 PF 2KV YR
R4028	X-R002T4473J	RC	47K OHM 1/4W	C554	X-CS0RB0413K	CC	0.001 UF 50V B
R4029	X-R002T4473J	RC	47K OHM 1/4W	C560	X-C0JLYR7H3K	CC	0.0022UF 2KV YR
R4032	X-R002T4101J	RC	100 OHM 1/4W	C602	X-CS0RF04H4Z	CC	0.022 UF 50V F
R4033	X-R903N8222J	RC	2.2K OHM 1/8W	C610	X-E02LU54R7M	CE	4.7 UF 50V
R4034	X-R903N8683J	RC	68K OHM 1/8W	C612	X-E02LU0471M	CE	470 UF 6.3V
R4035	X-R903N8104J	RC	100K OHM 1/8W	C618	X-CS0RCH4L2J	CC	330 PF 50V CH
R4037	X-R903N8391J	RC	390 OHM 1/8W	C621	X-CS0RF0414Z	CC	0.01 UF 50V F
R4038	X-R903N8684J	RC	680K OHM 1/8W	C622	X-CS0RB03H5K	CC	0.22 UF 25V B
R4039	X-R903N8822J	RC	8.2K OHM 1/8W	C623	X-CS0RB04Q3K	CC	0.0047UF 50V B
R4041	X-R903N8182J	RC	1.8K OHM 1/8W	C624	X-E524U2470D	CE	47 UF 16V
R4042	X-R903N8821J	RC	820 OHM 1/8W	C625	X-CS0RF0216Z	CC	1 UF 16V F
R4043	X-R903N8332J	RC	3.3K OHM 1/8W	C627	X-E524U5010D	CE	1 UF 50V
R4044	X-R801R7223J	RC	22K OHM 1/10W	C629	X-CS0RCH4U1J	CC	68 PF 50V CH
R4045	X-R801R7123J	RC	12K OHM 1/10W	C630	X-CS0RCH412J	CC	100 PF 50V CH
R4046	X-R801R7223J	RC	22K OHM 1/10W	C631	X-CS0RF0216Z	CC	1 UF 16V F
R4047	X-R002T4123J	RC	12K OHM 1/4W	C632	X-E524U52R2D	CE	2.2 UF 50V
R4048	X-R002T4680J	RC	68 OHM 1/4W	C634	X-CS0RF0414Z	CC	0.01 UF 50V F
R4052	X-R903N8822J	RC	8.2K OHM 1/8W	C636	X-CS0RF0414Z	CC	0.01 UF 50V F
R4053	X-R903N8682J	RC	6.8K OHM 1/8W	C639	X-CS0RF0414Z	CC	0.01 UF 50V F
R4055	X-R903N8102J	RC	1K OHM 1/8W	C640	X-CS0RF0415Z	CC	0.1 UF 50V F
R4056	X-R801R7106J	RC	10M OHM 1/10W	C641	X-E5EZT1102M	CE	1000 UF 10V
R4057	X-R903N8682J	RC	6.8K OHM 1/8W	C643	X-E02LU5220M	CE	22 UF 50V
R4058	X-R903N8272J	RC	2.7K OHM 1/8W	C644	X-E5EZU5220M	CE	22 UF 50V

ELECTRICAL REPLACEMENT PARTS LIST

REF. NO.	PART NO.	DESCRIPTION		REF. NO.	PART NO.	DESCRIPTION	
		CAPACITORS				**CAPACITORS**	
C645	X-E50HU5010M	CE	1 UF 50V	C1070	X-CS0RB04H3K	CC	0.0022UF 50V B
C647	X-CS0RF0414Z	CC	0.01 UF 50V F	C1071	X-CS0RCH412J	CC	100 PF 50V CH
C648	X-E524U5R22D	CE	0.22 UF 50V	C1073	X-CS0RB04H3K	CC	0.0022UF 50V B
C649	X-E5EZU5010M	CE	1 UF 50V	C1077	X-CS0RB04Q3K	CC	0.0047UF 50V B
C650	X-CS0RB04E4K	CC	0.015 UF 50V B	C1078	X-CS0RF0415Z	CC	0.1 UF 50V F
C651	X-CS0RCH4Q1J	CC	47 PF 50V CH	C1080	X-CS0RB0315K	CC	0.1 UF 25V B
C652	X-E5EZU2470M	CE	47 UF 16V	C1081	X-CS0RB0414K	CC	0.01 UF 50V B
C653	X-CS0RF0414Z	CC	0.01 UF 50V F	C1082	X-CS0RF0414Z	CC	0.01 UF 50V F
C654	X-CS0KCH4G1J	CC	18 PF 50V CH	C1083	X-CS0RB04H3K	CC	0.0022UF 50V B
C655	X-E524U2470D	CE	47 UF 16V	C1084	X-CS0RB04H3K	CC	0.0022UF 50V B
C656	X-CS0RF0414Z	CC	0.01 UF 50V F	C1085	X-E02LU2221M	CE	220 UF 16V
C658	X-CS0RB03H5K	CC	0.22 UF 25V B	C1089	X-CS0RF0415Z	CC	0.1 UF 50V F
C659	X-E524U0101D	CE	100 UF 6.3V	C1090	X-CS0RB04L3K	CC	0.0033UF 50V B
C660	X-CS0RF0415Z	CC	0.1 UF 50V F	C1091	X-CS0RB04H3K	CC	0.0022UF 50V B
C664	X-P235WE105J	CMP	1 UF 63V MKT	C4002	X-P235W1223J	CMP	0.022 UF 100V MKT
C665	X-E00NU2100M	CE	10 UF 16 V	C4004	X-E02LU0221M	CE	220 UF 6.3V
C667	X-CS0RF0414Z	CC	0.01 UF 50V F	C4005	X-CS0RF0414Z	CC	0.01 UF 50V F
C672	X-CS0RF0414Z	CC	0.01 UF 50V F	C4006	X-CS0RB04E4K	CC	0.015 UF 50V B
C673	X-CS0RCH4H2J	CC	220 PF 50V CH	C4010	X-E524U0470D	CE	47 UF 6.3V
C674	X-CS0RCH4B2J	CC	120 PF 50V CH	C4012	X-E524U0220D	CE	22 UF 6.3V
C675	X-CS0RCH4U1J	CC	68 PF 50V CH	C4014	X-CS0RF04Q4Z	CC	0.047 UF 50V F
C678	X-E5EZU4101M	CE	100 UF 35V	C4015	X-CS0RF04Q4Z	CC	0.047 UF 50V F
C687	X-CQGTF0415Z	CC	0.1 UF 50V F	C4016	X-CS0RB04U4K	CC	0.068 UF 50V B
C688	X-CS0RB04S4K	CC	0.056 UF 50V B	C4019	X-CS0RF04Q4Z	CC	0.047 UF 50V F
C751	X-CHGTB0412K	CC	100 PF 50V B	C4020	X-CS0RF0415Z	CC	0.1 UF 50V F
C752	X-CQGTF0415Z	CC	0.1 UF 50V F	C4021	X-CS0RF0415Z	CC	0.1 UF 50V F
C755	X-E50HU0221M	CE	220 UF 6.3V	C4023	X-E524U0220D	CE	22 UF 6.3V
C779	X-CHGTB0413K	CC	0.001 UF 50V B	C4024	X-E50HT0101M	CE	100 UF 6.3V
C781	X-CHGTB0413K	CC	0.001 UF 50V B	C4025	X-E50HU0221M	CE	220 UF 6.3V
C801	X-C0JLYR7H3K	CC	0.0022UF 2KV YR	C4027	X-E524U1330D	CE	33 UF 10V
C805	X-CS0RCH412J	CC	100 PF 50V CH	C4028	X-CS0RF0415Z	CC	0.1 UF 50V F
C809	X-CS0RB04U2K	CC	680 PF 50V B	C4029	X-CS0RF0414Z	CC	0.01 UF 50V F
C810	X-CS0KB04N2K	CC	390 PF 50V B	C4030	X-E524U2100D	CE	10 UF 16V
C811	X-CS0KB04N2K	CC	390 PF 50V B	C4031	X-E524U53R3D	CE	3.3 UF 50V
C1003	X-E02LU0221M	CE	220 UF 6.3V	C4032	X-CS0RB04L3K	CC	0.0033UF 50V B
C1004	X-CS0RCH412J	CC	100 PF 50V CH	C4033	X-CS0RB04W2K	CC	820 PF 50V B
C1007	X-CS0RF0415Z	CC	0.1 UF 50V F	C4034	X-E524U54R7D	CE	4.7 UF 50V
C1009	X-CS0RCH4H2J	CC	220 PF 50V CH	C4035	X-E623U50R1D	CE	0.1 UF 50V
C1010	X-CS0RCH4H2J	CC	220 PF 50V CH	C4036	X-CS0RB04N2K	CC	390 PF 50V B
C1013	X-CS0RB04N3K	CC	0.0039UF 50V B	C4037	X-CS0RF0415Z	CC	0.1 UF 50V F
C1015	X-E50HU1470M	CE	47 UF 10 V	C4038	X-CS0RCH4G2J	CC	180 PF 50V CH
C1016	X-E50HU2220M	CE	22 UF 16 V	C4041	X-CS0RF0415Z	CC	0.1 UF 50V F
C1017	X-CS0RF0415Z	CC	0.1 UF 50V F	C4042	X-E50HU0101M	CE	100 UF 6.3V
C1018	X-E50HU54R7M	CE	4.7 UF 50V	C4043	X-CS0RF0415Z	CC	0.1 UF 50V F
C1019	X-CS0RCH413J	CC	0.001 UF 50V CH	C4044	X-CS0RF0415Z	CC	0.1 UF 50V F
C1020	X-E50HU2100M	CE	10 UF 16V	C4045	X-E50HU0221M	CE	220 UF 6.3V
C1021	X-E02LU3330M	CE	33 UF 25V	C4046	X-E50HU53R3M	CE	3.3 UF 50V
C1022	X-CS0RF0415Z	CC	0.1 UF 50V F	C4047	X-E50HU2100M	CE	10 UF 16V
C1023	X-CS0RCH4H2J	CC	220 PF 50V CH	C4048	X-E524U2100D	CE	10 UF 16V
C1026	X-CS0RF0414Z	CC	0.01 UF 50V F	C4049	X-E524U2100D	CE	10 UF 16V
C1027	X-CS0RB04N3K	CC	0.0039UF 50V B	C4050	X-E50HU5R22M	CE	0.22 UF 50 V
C1028	X-CS0RF0415Z	CC	0.1 UF 50V F	C4051	X-E524U1330D	CE	33 UF 10V
C1029	X-CS0RB04U3K	CC	0.0068UF 50V B	C4052	X-E524U54R7D	CE	4.7 UF 50V
C1031	X-CS0RB0413K	CC	0.001 UF 50V B	C4053	X-E50HU54R7M	CE	4.7 UF 50V
C1032	X-E02LU0221M	CE	220 UF 6.3V	C4054	X-CS0RF0415Z	CC	0.1 UF 50V F
C1033	X-CS0RB0315K	CC	0.1 UF 25V B	C4055	X-CS0RB0216K	CC	1 UF 16V B
C1034	X-CS0RF0415Z	CC	0.1 UF 50V F	C4057	X-E50HU5010M	CE	1 UF 50V
C1035	X-CS0RCH4H2J	CC	220 PF 50V CH	C4058	X-E524U0470D	CE	47 UF 6.3V
C1037	X-CS0RCH4Q2J	CC	470 PF 50V CH	C4059	X-CS0RF0415Z	CC	0.1 UF 50V F
C1038	X-CS0RCH4U2J	CC	680 PF 50V CH	C4060	X-CS0RF0414Z	CC	0.01 UF 50V F
C1040	X-CS0KCH4G1J	CC	18 PF 50V CH	C4061	X-CS0RF0414Z	CC	0.01 UF 50V F
C1046	X-CS0KCH421J	CC	20 PF 50V CH	C4062	X-E524U5010D	CE	1 UF 50V
C1047	X-CS0KCH4G1J	CC	18 PF 50V CH	C4063	X-E524U0470D	CE	47 UF 6.3V
C1048	X-CS0KCH4G1J	CC	18 PF 50V CH	C4064	X-CS0RB04H4K	CC	0.022 UF 50V B
C1049	X-CS0KCH4H1J	CC	22 PF 50V CH	C4065	X-E524U5010D	CE	1 UF 50V
C1050	X-CS0KCH421J	CC	20 PF 50V CH	C4066	X-CS0RB04H4K	CC	0.022 UF 50V B
C1055	X-CS0RCH412J	CC	100 PF 50V CH	C4067	X-E524U5010D	CE	1 UF 50V
C1056	X-CS0RF0415Z	CC	0.1 UF 50V F	C4069	X-CS0RF0415Z	CC	0.1 UF 50V F
C1058	X-E02LU0101M	CE	100 UF 6.3V	C4074	X-CS0RF0414Z	CC	0.01 UF 50V F
C1060	X-CS0RCH412J	CC	100 PF 50V CH	C4075	X-CS0RCH4E2J	CC	150 PF 50V CH
C1061	X-CS0RCH412J	CC	100 PF 50V CH	C4076	X-CS0RF0415Z	CC	0.1 UF 50V F
C1062	X-CS0RB0216K	CC	1 UF 16V B	C4210	X-CS0RB0315K	CC	0.1 UF 25V B
C1064	X-CQGTF0416Z	CC	1 UF 50V F			**DIODES**	
C1065	X-CS0RF0415Z	CC	0.1 UF 50V F	D401	X-D2WT011E10	DIODE,SILICON	11E1-EIC
C1067	X-CS0RCH412J	CC	100 PF 50V CH	D402	X-D2LTPG06J0	DIODE,SILICON	RMPG06J-G3
C1068	X-CS0RB04H3K	CC	0.0022UF 50V B	D405	X-D2WT011E10	DIODE,SILICON	11E1-EIC
C1069	X-CS0RB04H4K	CC	0.022 UF 50V B	⚠ D408	X-D94TA27011	DIODE,ZENER	HZ27-1L TD

ELECTRICAL REPLACEMENT PARTS LIST

REF. NO.	PART NO.	DESCRIPTION	
		DIODES	
⚠ D409	X-D94TA11B13	DIODE,ZENER	HZ11B3L TD
D410	X-D97U06R81B	DIODE,ZENER	MTZJ6.8B T-77
⚠ D412	X-D2LTPG06J0	DIODE,SILICON	RMPG06J-G3
⚠ D413	X-D2LTPG06J0	DIODE,SILICON	RMPG06J-G3
⚠ D501	X-D4LZBL06L0	DIODE	GBL06L-6177
D502	X-D1VT001330	DIODE,SILICON	1SS133T-77
D504	X-D1VT001330	DIODE,SILICON	1SS133T-77
⚠ D505	X-D2WXB290S0	DIODE,SILICON	SB290S
D506	X-D2LTPG06J0	DIODE,SILICON	RMPG06J-G3
⚠ D507	X-D28015DF60	DIODE,SILICON	15DF6
D508	X-D1VT001330	DIODE,SILICON	1SS133T-77
⚠ D510	X-D2BTRU2AM0	DIODE,SILICON	RU2AM V1
⚠ D512	X-D2WXB290S0	DIODE,SILICON	SB290S
D513	X-D1VT001330	DIODE,SILICON	1SS133T-77
D514	X-D1VT001330	DIODE,SILICON	1SS133T-77
⚠ D515	X-D97U03301B	DIODE,ZENER	MTZJ33B T-77
⚠ D517	X-D2WT11ES10	DIODE,SILICON	11ES1-E1C
D518	X-D1VT001330	DIODE,SILICON	1SS133T-77
⚠ D519	X-D2WXB290S0	DIODE,SILICON	SB290S
D520	X-D28TQS04N0	DIODE,SCHOTTKY	11EQS04N-TA1B2
D521	X-D1VT001330	DIODE,SILICON	1SS133T-77
D526	X-D23U1003A3	DIODE,SCHOTTKY	SB10-03A3
D528	X-D97U05R61B	DIODE,ZENER	MTZJ5.6B T-77
D601	X-D1VT001330	DIODE,SILICON	1SS133T-77
D602	X-D97U08R21A	DIODE,ZENER	MTZJ8.2AT-77
D604	X-D1VT001330	DIODE,SILICON	1SS133T-77
D605	X-D2WT11ES10	DIODE,SILICON	11ES1-E1C
D608	X-D23U1003A3	DIODE,SCHOTTKY	SB10-03A3
D609	X-D97U06R81B	DIODE,ZENER	MTZJ6.8B T-77
D610	X-D97U06R81B	DIODE,ZENER	MTZJ6.8B T-77
D611	X-D97U06R81B	DIODE,ZENER	MTZJ6.8B T-77
D612	X-D1VT001330	DIODE,SILICON	1SS133T-77
D613	X-D1VT001330	DIODE,SILICON	1SS133T-77
D614	X-D1VT001330	DIODE,SILICON	1SS133T-77
D615	X-D97U06R81B	DIODE,ZENER	MTZJ6.8B T-77
D618	X-D1VT001330	DIODE,SILICON	1SS133T-77
D619	X-D1VT001330	DIODE,SILICON	1SS133T-77
D620	X-D1VT001330	DIODE,SILICON	1SS133T-77
D621	X-D1VT001330	DIODE,SILICON	1SS133T-77
D791	X-002132Q130	LED	SLZ-936C-07-S-T1
D793	X-002132Q130	LED	SLZ-936C-07-S-T1
D794	X-002132Q130	LED	SLZ-936C-07-S-T1
D801	X-D1VT001330	DIODE,SILICON	1SS133T-77
D802	X-D1VT001330	DIODE,SILICON	1SS133T-77
D803	X-D1VT001330	DIODE,SILICON	1SS133T-77
D1003	X-0010600060	LED	SID1050CM
D1009	X-D1VT001330	DIODE,SILICON	1SS133T-77
D1012	X-D1VT001330	DIODE,SILICON	1SS133T-77
D1014	X-D97U05R61B	DIODE,ZENER	MTZJ5.6B T-77
D4001	X-D97U06R81B	DIODE,ZENER	MTZJ6.8B T-77
D4207	X-D97U06R81B	DIODE,ZENER	MTZJ6.8B T-77
		ICS	
⚠ IC351	X-I01DP75110	IC	AN7511
⚠ IC401	X-I01TD55220	IC	AN5522
IC501	X-I1KA98R050	IC	KIA78R05PI
⚠ IC502	X-I2BT066230	IC	STR-G6623
IC601	X-I06FC61206	IC	M61206FP
IC1001	X-I56F57059A	IC	OEC7059A
⚠ IC1003	X-IC7J0311A0	IC	R3111N311A/C-TR
IC1004	X-I03DQ18800	IC	LB11880
IC1099	X-A58005A015	IC	S-24C04BDP-LA
IC4001	X-I03F3201M0	IC	LA71201M-MPB
		TRANSISTORS	
Q401	X-TNYJA05001	COMPOUND TRANSISTOR	DTC143EKAT146
⚠ Q402	X-TAAT01281Y	TRANSISTOR,SILICON	KTA1281_Y
Q403	X-TNAAJ05003	COMPOUND TRANSISTOR	KRC111RTK
Q404	X-TPAAD05003	COMPOUND TRANSISTOR	KRA104RTK
⚠ Q405	X-TC3T022710	TRANSISTOR,SILICON	2SC2271(D,E)-AE
⚠ Q406	X-TD30026270	TRANSISTOR,SILICON	2SD2627LS-CBC11
⚠ Q501	X-0002500450	PHOTO COUPLER	TLP621(GR)
Q502	X-TNYJD05001	COMPOUND TRANSISTOR	DTC144EKAT146
⚠ Q503	X-TA3T016240	TRANSISTOR,SILICON	2SA1624-AA
Q507	X-TCATC31980	TRANSISTOR,SILICON	KTC3198-AT(Y,GR)
Q508	X-TNYJD05001	COMPOUND TRANSISTOR	DTC144EKAT146
Q601	X-T6YJ1037K0	TRANSISTOR,SILICON	2SA1037AKT146R,S
Q602	X-TCAT032034	TRANSISTOR,SILICON	KTC3203_Y-AT
Q603	X-TCAT032034	TRANSISTOR,SILICON	KTC3203_Y-AT

REF. NO.	PART NO.	DESCRIPTION	
		TRANSISTORS	
Q604	X-TDWT00400E	TRANSISTOR,SILICON	2SD400E
Q605	X-TDWT00400E	TRANSISTOR,SILICON	2SD400E
Q606	X-TCAT032034	TRANSISTOR,SILICON	KTC3203_Y-AT
Q608	X-TNAAB05003	COMPOUND TRANSISTOR	KRC102RTK
Q609	X-TNAAB05003	COMPOUND TRANSISTOR	KRC102RTK
Q611	X-TNAAB05003	COMPOUND TRANSISTOR	KRC102RTK
⚠ Q804	X-TC3F042170	TRANSISTOR,SILICON	2SC4217(D,E)-RAC
⚠ Q805	X-TC3F042170	TRANSISTOR,SILICON	2SC4217(D,E)-RAC
⚠ Q806	X-TC3F042170	TRANSISTOR,SILICON	2SC4217(D,E)-RAC
Q1002	X-T8YJ2412K0	TRANSISTOR,SILICON	2SC2412KT146 R,S
Q1003	X-0002700530	PHOTO COUPLER	RPI-352Q01R
Q1004	X-TNAAC05002	COMPOUND TRANSISTOR	KRC103RTK
⚠ Q1005	X-0002700590	PHOTO COUPLER	RPI-301
Q1006	X-TNAAB05003	COMPOUND TRANSISTOR	KRC102RTK
Q1007	X-TNAAB05003	COMPOUND TRANSISTOR	KRC102RTK
Q1008	X-TNAAB05003	COMPOUND TRANSISTOR	KRC102RTK
Q1009	X-0002700530	PHOTO COUPLER	RPI-352Q01R
Q1013	X-0000100380	PHOTO TRANSISTOR	PNA2604M010R
Q1023	X-T8YJ2412K0	TRANSISTOR,SILICON	2SC2412KT146 R,S
Q4001	X-TCATC31980	TRANSISTOR,SILICON	KTC3198-AT(Y,GR)
Q4002	X-TCATC31980	TRANSISTOR,SILICON	KTC3198-AT(Y,GR)
Q4003	X-TPAAC05002	COMPOUND TRANSISTOR	KRA103RTK
Q4005	X-TA5T010154	TRANSISTOR,SILICON	2SA1015Y(TPE2)
Q4006	X-TC5T021204	TRANSISTOR,SILICON	2SC2120Y(TPE2)
Q4007	X-T8YJ2412K0	TRANSISTOR,SILICON	2SC2412KT146 R,S
Q4009	X-T6YJ1037K0	TRANSISTOR,SILICON	2SA1037AKT146R,S
Q4010	X-T6YJ1037K0	TRANSISTOR,SILICON	2SA1037AKT146R,S
Q4011	X-T8YJ2412K0	TRANSISTOR,SILICON	2SC2412KT146 R,S
Q4012	X-T8YJ2412K0	TRANSISTOR,SILICON	2SC2412KT146 R,S
		COILS &TRANSFORMERS	
L401	X-021679472K	COIL	4.7 MH
⚠ L502	X-029T000092	COIL,LINE FILTER	1R0A103F24
⚠ L503	X-028R140031	COIL,DEGAUSS	8R140031
L601	X-0331920018	COIL	3192001
L603	X-02167F470J	COIL	47 UH
L607	X-021LA6220K	COIL	22 UH
L610	X-021LA6R33M	COIL	0.33 UH
L612	X-021LA66R8K	COIL	6.8 UH
L615	X-021LA6R47M	COIL	0.47 UH
L751	X-021LA6101K	COIL	100 UH
L801	X-021673221K	COIL	220 UH
L1001	X-021LA62R2K	COIL	2.2 UH
L4001	X-02167F220J	COIL	22 UH
L4003	X-02167F101J	COIL	100 UH
L4004	X-02167F220J	COIL	22 UH
L4005	X-02167F470J	COIL	47 UH
L4006	X-02167F470J	COIL	47 UH
L4009	X-02167F101J	COIL	100 UH
T401	X-03305Y0018	TRANS,HORIZONTAL DRIVE	305Y001
⚠ T501	X-048129015S	TRANSFORMER,SWITCHING	8129015S
T4001	X-031626009R	COIL,BIAS OSC	1626009
		JACKS	
⚠ J351	X-060G131014	RCA JACK	HTJ-035-28A
J701	X-0602101020	JACK,RCA	JPJ3811-01-430
⚠ J801	X-066X120014	SOCKET,CATHODE RAY TUBE	HPS3200-010501
		SWITCHES	
SW751	X-0504101T34	SWITCH,TACT	EVQ21505R
SW752	X-0504101T34	SWITCH,TACT	EVQ21505R
SW753	X-0504101T34	SWITCH,TACT	EVQ21505R
SW754	X-0504101T34	SWITCH,TACT	EVQ21505R
SW755	X-0504101T34	SWITCH,TACT	EVQ21505R
SW756	X-0504101T34	SWITCH,TACT	EVQ21505R
SW757	X-0504101T34	SWITCH,TACT	EVQ21505R
SW791	X-0504101T34	SWITCH,TACT	EVQ21505R
SW792	X-0504101T34	SWITCH,TACT	EVQ21505R
SW793	X-0504101T34	SWITCH,TACT	EVQ21505R
SW794	X-0504101T34	SWITCH,TACT	EVQ21505R
SW797	X-0504101T34	SWITCH,TACT	EVQ21505R
SW1001	X-0508221001	SWITCH (LEAF)	SPVF130100
		VARIABLE RESISTORS	
VR502	X-V1163L2BTC	VOLUME,SEMI FIXED	EVNCYAA03BY2
		MISCELLANEOUS	
B402	X-024AT03655	CORE,BEADS	BL01RN1-A63T6

ELECTRICAL REPLACEMENT PARTS LIST

REF. NO.	PART NO.	DESCRIPTION	
		MISCELLANEOUS	
	B403	X-024AT03655	CORE,BEADS	BL01RN1-A63T6
	B502	X-024AT03482	CORE,BEADS	BL02RN2-R62T4
	B503	X-024AT03655	CORE,BEADS	BL01RN1-A63T6
	B505	X-024AT03482	CORE,BEADS	BL02RN2-R62T4
	B602	X-024AT03655	CORE,BEADS	BL01RN1-A63T6
	B604	X-024AT03481	CORE,BEADS	BL02RN1-R62T2
	CD351	X-06CH27080A	CORD,CONNECTOR	CH27080A
	CD352	X-06CH12435A	CORD,CONNECTOR	CH12435A
⚠	CD501	See Page67.	CORD,AC BUSH	0R414905
	CD503	X-069X620040	CONNECTOR	JM-2BK-61
	CD757	X-06CH2A020A	CORD,CONNECTOR	CH2A020A
	CD801	X-06CU82039A	CORD,CONNECTOR	SM1098-009-1A
	CF601	X-1022T45R72	FILTER,SAW	SAF45MFY220ZR
	CF603	X-1011T4R504	FILTER,CERAMIC	EFCT4R5YS5A
	CF604	X-1011T4R517	FILTER,CERAMIC	EFCT4R5MW5
	CP351	X-0694260139	CONNECTOR PCB SIDE	173979-6
	CP353	X-0694270139	CONNECTOR PCB SIDE	173979-7
⚠	CP401	X-069X450029	CONNECTOR PCB SIDE	B05B-DVS
⚠	CP502	X-069W420029	CONNECTOR PCB SIDE	TV-50P-02-A1
	CP503	X-069X620030	CONNECTOR PCB SIDE	RE-H022TD-1130
	CP757	X-06942A0139	CONNECTOR PCB SIDE	1-173979-0
	CP801	X-069W320018	CONNECTOR PCB SIDE	TS-80P-02-V1
	CD1001	X-122L040904	CORD,JUMPER	2L040904
	CD1002	X-122F071901	CORD,JUMPER	2F071901
	CD4001	X-122L061501	CORD,JUMPER	2L061501
	CP1003	X-0694240139	CONNECTOR PCB SIDE	173979-4
	CP1004	X-0697280590	CONNECTOR PCB SIDE	TMC-J08P-B1
	CP1005	X-069J770029	CONNECTOR PCB SIDE	IMSA-9604S-07Z14
	CP1006	X-069J740029	CONNECTOR PCB SIDE	IMSA-9604S-04Z14
	CP4001	X-0697290620	CONNECTOR PCB SIDE	TOC-C09X-A1
	CP4002	X-069J760029	CONNECTOR PCB SIDE	IMSA-9604S-06Z14
	CP4003	X-0697120320	CONNECTOR PCB SIDE	TMC-T02X-E1
	CP851A	X-067R010019	WIRE HOLDER	51048-1000
	CP851B	X-067R010019	WIRE HOLDER	51048-1000
	CUS011	X-800WFAA006	CUSHION A	
	CUS012	X-800WFAA008	CUSHION C	
	CUS018	X-800WFAA007	CUSHION B	
	EL001	X-124116281A	EYE LET	XRY16X28BD
	EL002	X-124120301A	EYE LET	XRY20X30BD
⚠	F501	X-081PC05004	FUSE	51MS050LCC
⚠	FB401	X-043213013R	TRANSFORMER,FLYBACK	3213013R
	FH501	X-06710T0006	HOLDER,FUSE	EYF-52BC
	FH502	X-06710T0006	HOLDER,FUSE	EYF-52BC
	OS753	X-077Q014004	REMOTE RECEIVER	PIC-28143TE5
⚠	SP351	X-070C533019	SPEAKER	SG04D11BNA
⚠	TH501	X-DF5EL3R0A0	DEGAUSS ELEMENT	ZPB45BL3R0A
⚠	TU601	X-0145K00055	TUNER,VHF-UHF	TECC1040PG32D
⚠	V801	X-098Q1404B2	CRT W/DY	A34AGT13X98(L)
	X602	X-100CT3R505	CRYSTAL	HC-49/C
	X1001	X-100CT01207	CRYSTAL	HC-49/U-S
	X1002	X-100DA32R01	CRYSTAL	DT-26
	X4001	X-100CT3R502	CRYSTAL	HC-49/U

RESISTOR

RC.....	CARBON RESISTOR

CAPACITORS

CC.....	CERAMIC CAPACITOR
CE.....	ALUMI ELECTROLYTIC CAPACITOR
CP.....	POLYESTER CAPACITOR
CPP.....	POLYPROPYLENE CAPACITOR
CPL.....	PLASTIC CAPACITOR
CMP.....	METAL POLYESTER CAPACITOR
CMPL.....	METAL PLASTIC CAPACITOR
CMPP.....	METAL POLYPROPYLENE CAPACITOR

The difference point list between TV-13142 and TV-13142W

MECHANICAL REPLACEMENT PARTS LIST

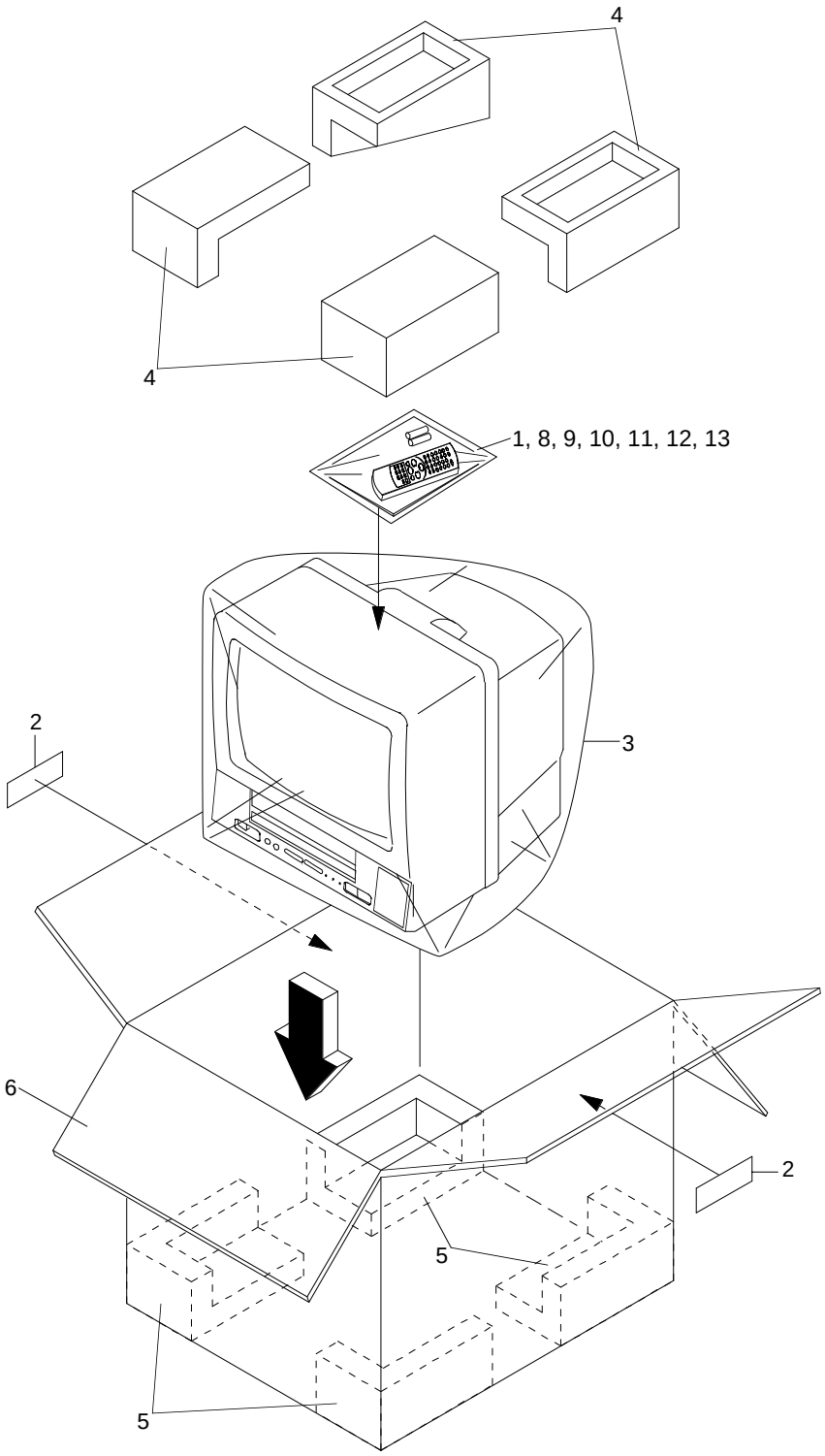
	TV13142		TV13142W	
REF. NO.	PART NO.	DESCRIPTION	PART NO.	DESCRIPTION
101	X-A58005A720	CABINET,FRONT ASS'Y	X-A58006A720	CABINET,FRONT ASS'Y
114	X-7225380011	SHEET,RATING	X-7225380012	SHEET,RATING
116	X-712WPJ0732	FLAP	X-712WPJ0733	FLAP
118	X-735WPJ0180	BUTTON,FRAME	X-735WPJ0182	BUTTON,FRAME
123	X-702WPAA108	CABINET,BACK	X-702WPBA048	CABINET,BACK
126	X-735WPJ0181	BUTTON,CHANNEL/VOLUME	X-735WPJ0183	BUTTON,CHANNEL/VOLUME

ACCESSORY REPLACEMENT PARTS LIST

	TV13142		TV13142W	
REF. NO.	PART NO.	DESCRIPTION	PART NO.	DESCRIPTION
1	RM-C388	TRANSMITTER	RM-C388W	TRANSMITTER
2	X-7230007282	SHEET,UPC	X-7230007310	SHEET,UPC

ELECTRICAL REPLACEMENT PARTS LIST

	TV13142		TV13142W	
REF. NO.	PART NO.	DESCRIPTION	PART NO.	DESCRIPTION
⚠ CD501	X-120R414905	CORD AC BUSH 0R414905	X-120R414906	CORD AC BUSH 0R414906



ACCESSORY REPLACEMENT PARTS LIST

REF. NO.	PART NO.	DESCRIPTION
1	See Page67.	TRANSMITTER
2	See Page67.	SHEET,UPC
3	X-791WHA0061	LAMIFILM BAG
4	X-792WHA0223	PACKAGE,TOP
5	X-792WHA0224	PACKAGE,BOTTOM
6	X-793WCD1342	GIFT BOX
7	X-A58005A975	INSTRUCTION BOOK KIT
8	X-JB5KD500	POLYBAG
9	X-J5500112	GUARANTEE CARD
10	X-J5500115	SERVICE STATION LIST
11	X-J5500117	REGISTRATION CARD
12	X-J5501202	GUARANTEE CARD
13	X-J5800501	INSTRUCTION BOOK

TV-13142
TV-13142W

TV-13142/TV-13142W STANDARD CIRCUIT DIAGRAM

■ NOTE ON USING CIRCUIT DIAGRAMS

1.SAFETY

The Components identified by the symbol ⚠ are critical for safety. For continued safety, replace safety critical components only with manufacturer's recommended parts.

2.INDICATION OF PARTS SYMBOL [EXAMPLE]

●In the PC board :R1209→R209

3.NOTE FOR REPAIRING SERVICE

This model's power circuit is partly different in the GND.
Please, care must be taken for the following points.
(1)Do not touch the LIVE side GND or the LIVE side GND and the ISOLATED(NEUTRAL) side GND simultaneously. If the above caution is not respected, an electric shock may be caused. Therefore, make sure that the power cord is surely removed from the receptacle when, for example, the chassis is pulled out.
(2)Do not short between the LIVE side GND and ISOLATED(NEUTRAL) side GND or never measure with a measuring apparatus (oscilloscope, etc.) the LIVE side GND and ISOLATED(NEUTRAL) side GND at the same time. If the above precaution is not respected , a fuse or any parts will be broken.
◇Since the circuit diagram is a standard one, the circuit and circuit constants may be subject to change for improvement without any notice.

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0103VP
H.K.

Mar.2001 No.51810

TV-13142
TV-13142W

SEMICONDUCTOR BASE CONNECTIONS

DIODE

1SS133T-77
HZ11B3L TD
HZ27-1L TD
MTZJ33B T-77
MTZJ5.6B T-77
MTZJ6.8B T-77
MTZJ8.2AT-77
SB10-03A3

11E1-EIC
11EQS04N-TA1B2
11ES1-E1C

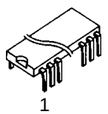
15DF6
RMPG06J-G3
RU2AM V1
SB290S

SID1050CM

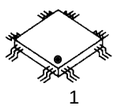
SLZ-936C-07-S-T1

GBL06L-6177

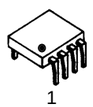
IC



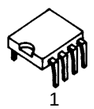
LB11880



LA71201M-MPB
M61206FP

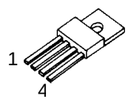


S-24C04BDP-LA

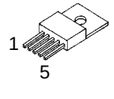


AN7511

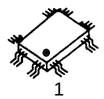
R3111N311A/C-TR



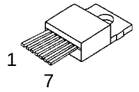
KIA78R05PI



STR-G6623

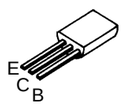


OEC7059A

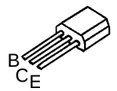


AN5522

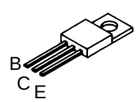
TRANSISTOR



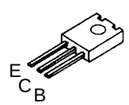
2SA1015Y(TPE2)
2SA1624-AA
2SC2120Y(TPE2)
2SC2271(D,E)-AE
2SD400E



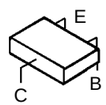
KTA1281_Y
KTC3198-AT(Y,GR)
KTC3203_Y-AT



2SD2627LS-CBC11

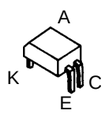


2SC4217(D,E)-RAC

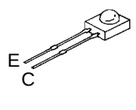


2SA1037AKT146R,S
2SC2412KT146 R,S
DTC143EKAT146
DTC144EKAT146
KRA103RTK
KRA104RTK
KRC102RTK
KRC103RTK
KRC111RTK

RPI-352Q01R



TLP621(GR)

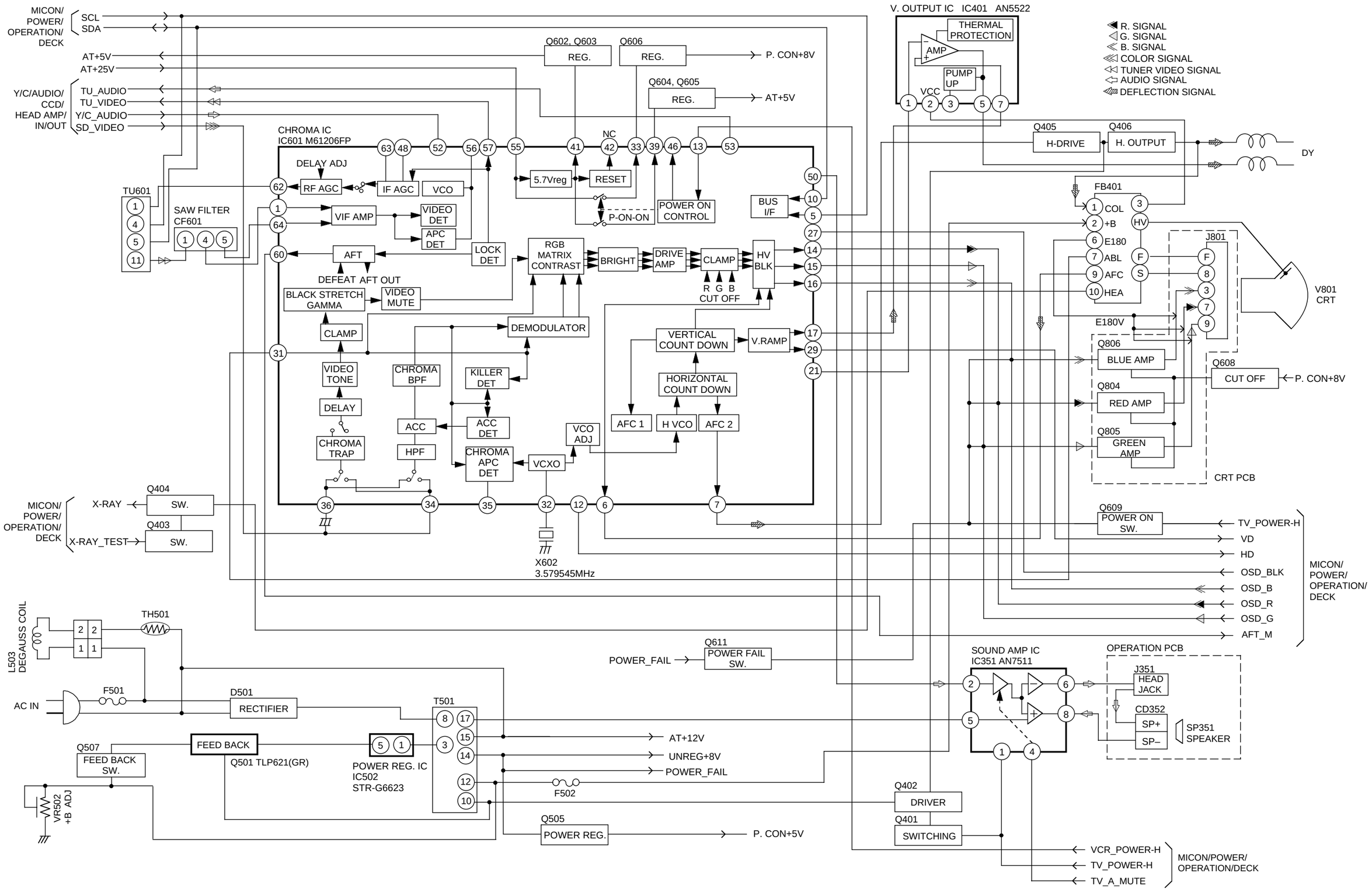


PNA2604M010R

RPI-301

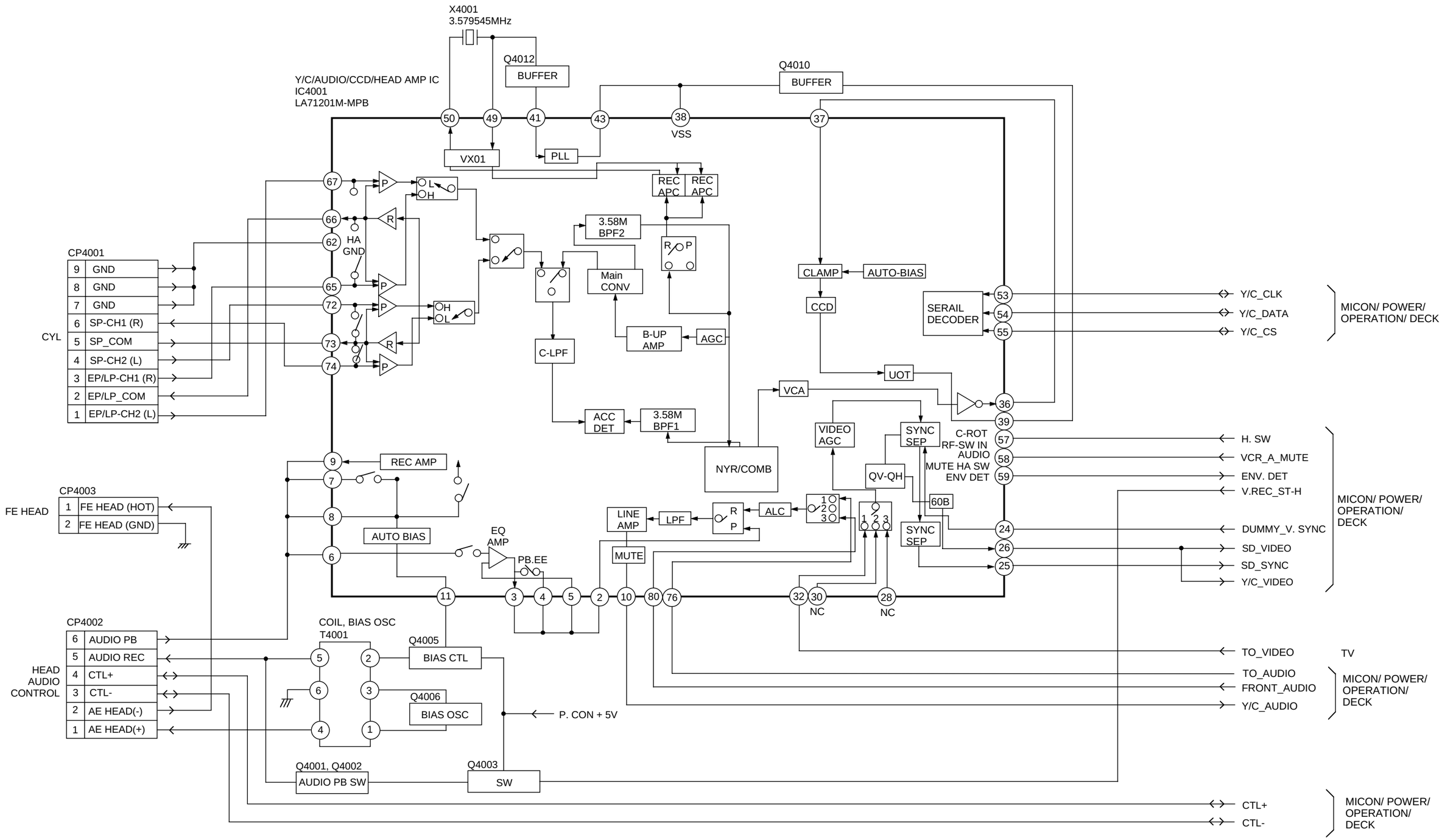
BLOCK DIAGRAM

TV BLOCK DIAGRAM

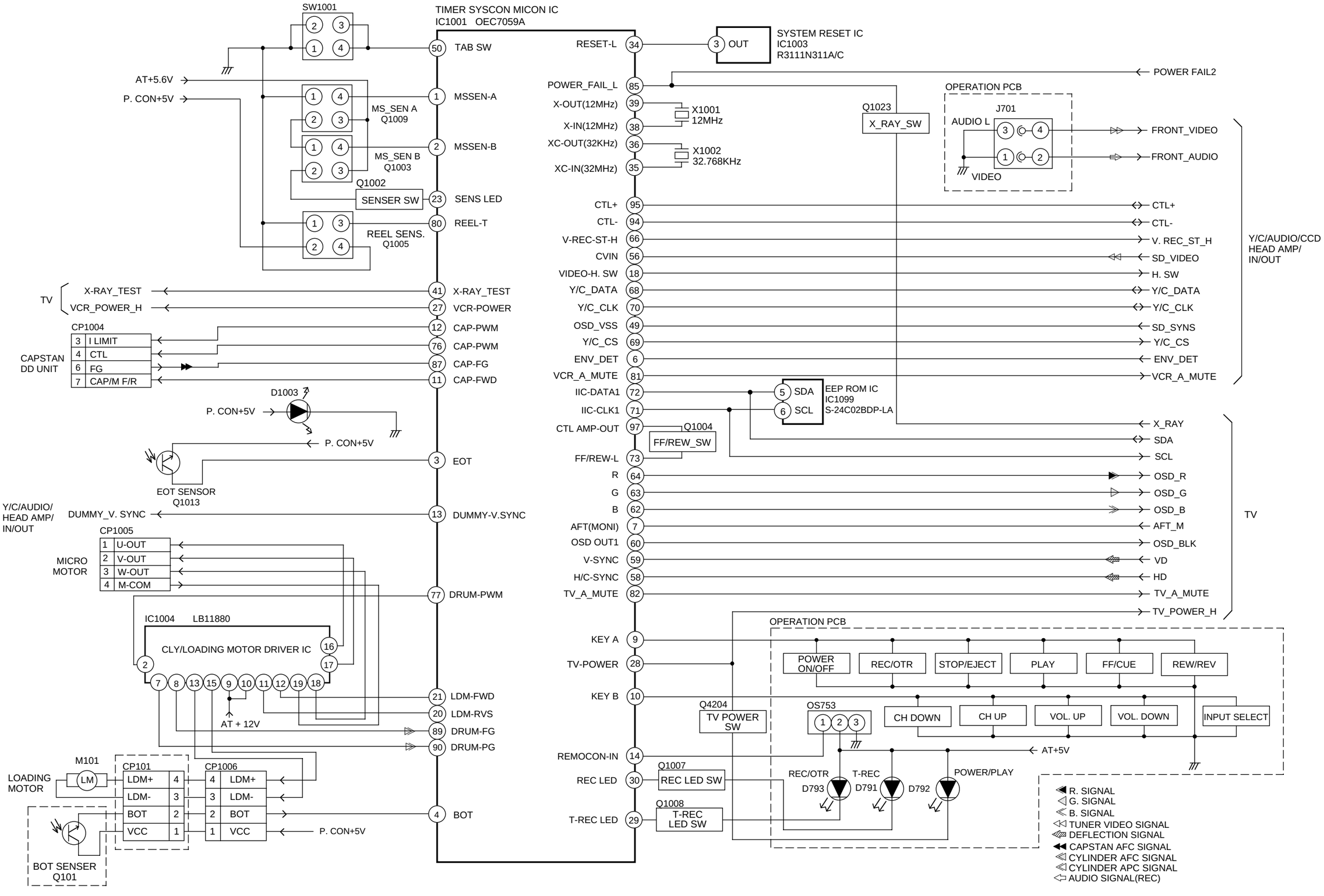


TV-13142
TV-13142W

Y/C/AUDIO/CCD/HEAD AMP/IN/OUT BLOCK DIAGRAM



MICON/POWER/OPERATION/DECK BLOCK DIAGRAM



WIRING CONNECTION DIAGRAM

INTERCONNECTION DIAGRAM

HEADPHONE JACK
J351

OPERATION PCB
PCB030
TE9965

J701

OS753
GND
B+
Vout

TM101

SPEAKER
SP351
8 OHM

CD352
SP +
SP -

CD757
ON TIMER LED
KEY B
REC LED
T-REC LED
KEY A
AT+5V
GND
REMOCON IN

CD351
GND
SP OUT L
SOUND OUT L
SOUND GND
FRONT A IN L
GND
FRONT VIDEO IN

CP757 (NC NC)
CP353 (NC NC)

HALL SENSOR
MAIN COIL
ROTOR MAGNET
MR FG SENSOR
VCC O G
HALL VCC
HALL IN
OUT SWITCH LOGIC

CP1004
GND
MOTOR GND
I LIMIT
CTL
VCO
FG
CAP/M/F/R
VCC(5V)

CAPSTAN DD UNIT
DECK MECHA ASS'Y
M2001

AC120V 60Hz
CD501
BLADE WIDE
WHITE
BLACK
S101A
S102A

DEGAUSS COIL
L503
CP502

CD503
+B(A)
+B(B)
CP503

FBT
FB401

SYSCON PCB
PCB800
VMA213

CP4002
AUDIO PB
AUDIO REC
CTL+
CTL-
AE HEAD(-)
AE HEAD(+)

CD1002
FFC

HEAD AUDIO CONTROL ASS'Y
H5001
AUDIO
CONTROL
AE

DECK PCB
PCB550
VE8851

CP1006
VCC
BOT
LDM-
LDM+

CD1001
FFC

CP101
RED
WHITE
BOT SENSOR
Q101
LM
LOADING MOTOR
M101

CP4003
FE HEAD (GND)
FE HEAD (HOT)

F/E HEAD ASS'Y
H5002

V801
CRT
H.V
ANODE
DY
SCREEN
FOCUS
CD801
CP401
CP801
GND
GND
FOCUS
SCREEN
S801

CRT SOCKET
J801

CP851B
CP851A
180V
NC
H GND
HEATER
NC
R.OUT
B.OUT
G.OUT
CUT OFF
GND
CD851

CRT PCB
PCB110
TCA354

TU601
IF
+30V
+5V
SDA
SCL
AGC

CP1005
U-OUT
V-OUT
W-OUT
M-COM
GND
PG OUT
PG GND

CD4001
FFC

CD2001
MICRO MOTOR
M2003

CYLINDER UNIT
UN4001

CP4001
GND
GND
GND
SP-CH1 (R)
SP COM
SP-CH2 (L)
EP/LP-CH1 (R)
EP/LP COM
EP/LP-CH1 (L)

SP HEAD
EP/LP HEAD

NOTE: THIS INTERCONNECTION DIAGRAM IS THE LATEST AT THE TIME OF PRINTING AND SUBJECT TO CHANGE WITHOUT NOTICE 。

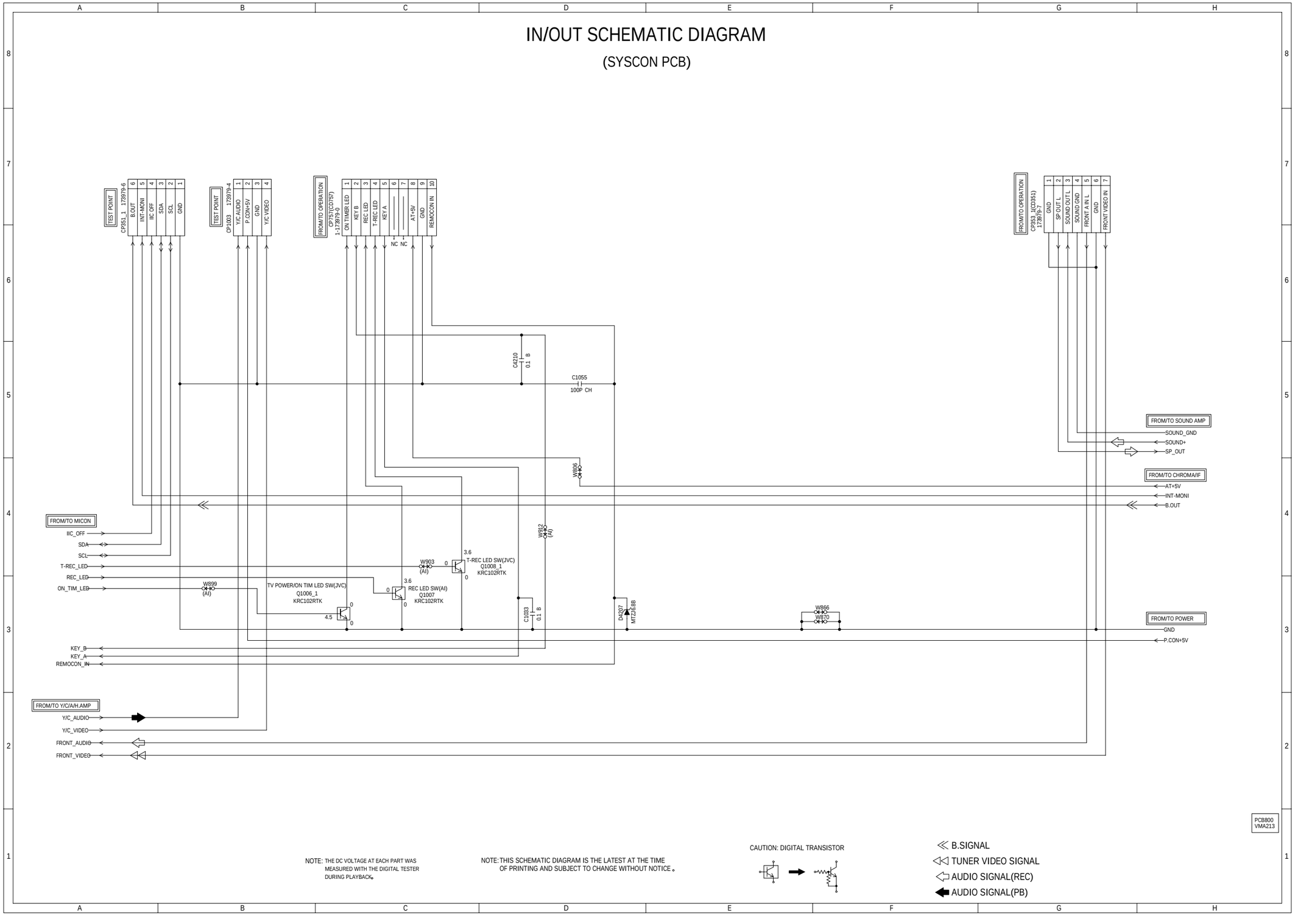
CAUTION: SINCE THESE PARTS MARKED BY ⚠ ARE CRITICAL FOR SAFETY,USE ONES DESCRIBED IN PARTS LIST ONLY 。

ATTENTION: LES PIECES REPAREES PAR UN ⚠ ETANT DANGEREUSES AN POINT DE VUE SECURITE N'UTILISER QUE CELLS DECRITES DANS LA NOMENCLATURE DES PIECES。

TV-13142
TV-13142W

Circuit Diagram

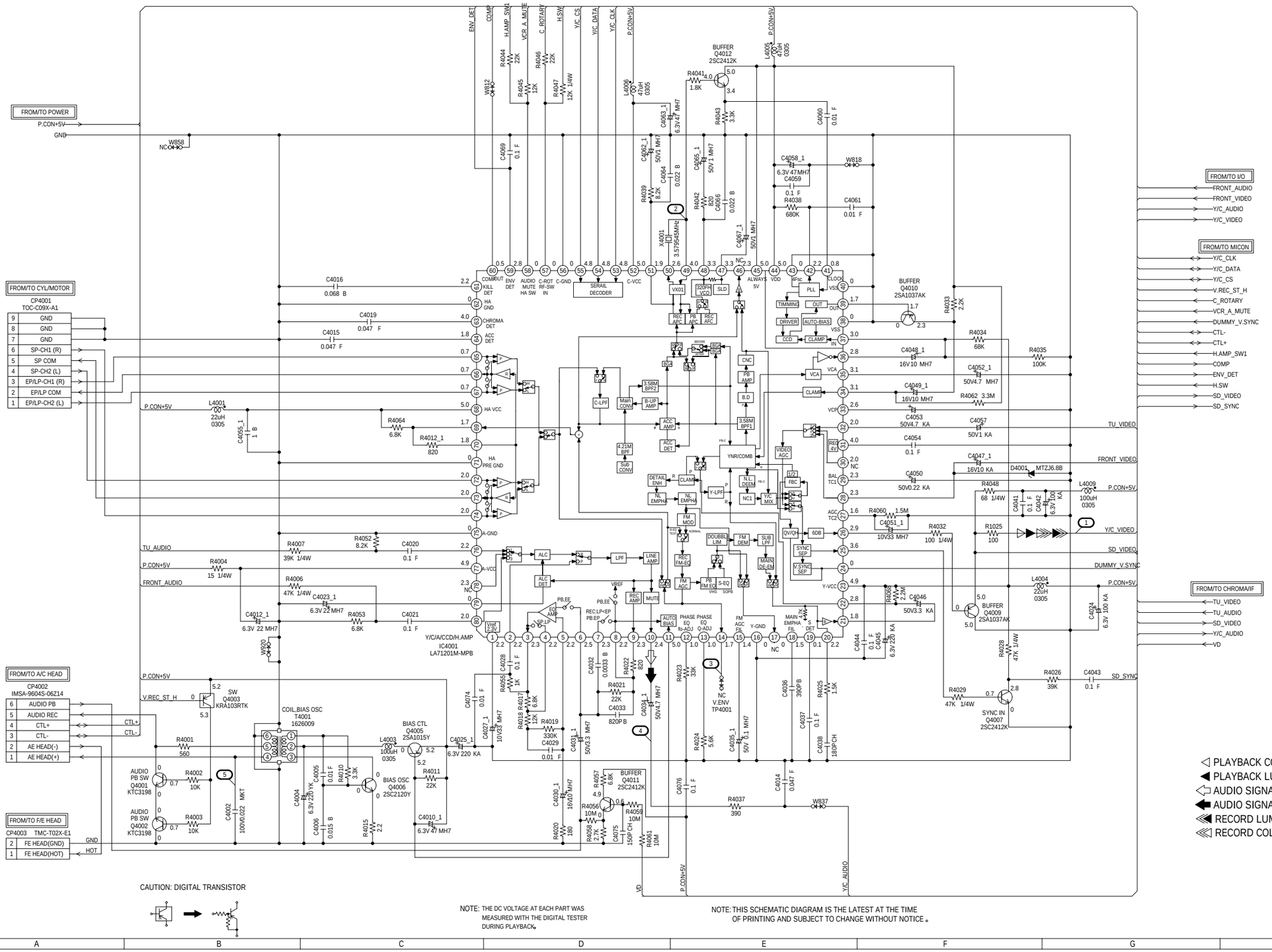
[SYSCON PWB(IN/OUT) CIRCUIT DIAGRAM]



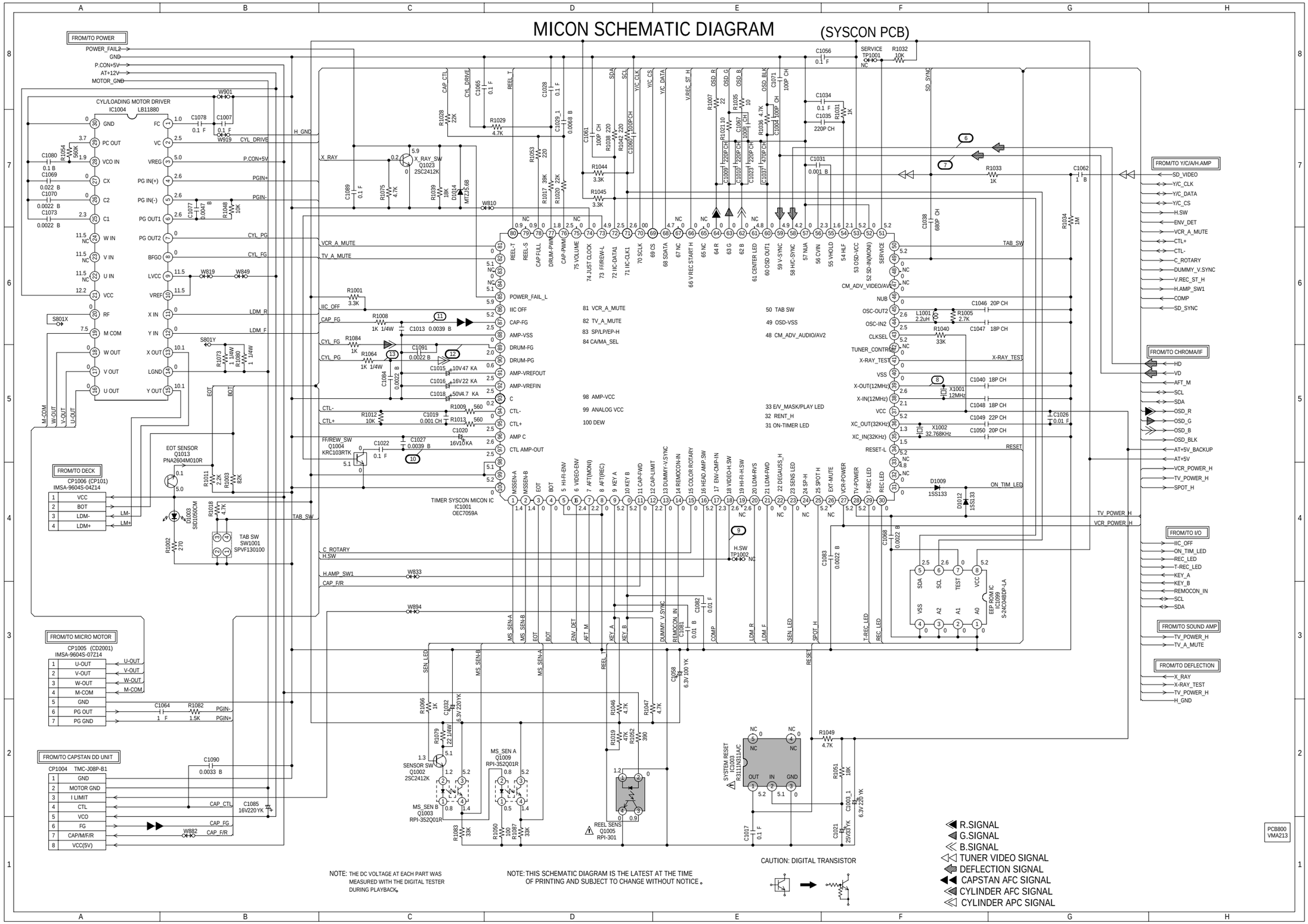
[SYSCON PWB(Y/C/AUDIO/CCD/HEAD AMP) CIRCUIT DIAGRAM]

Y/C/AUDIO/CCD/HEAD AMP SCHEMATIC DIAGRAM

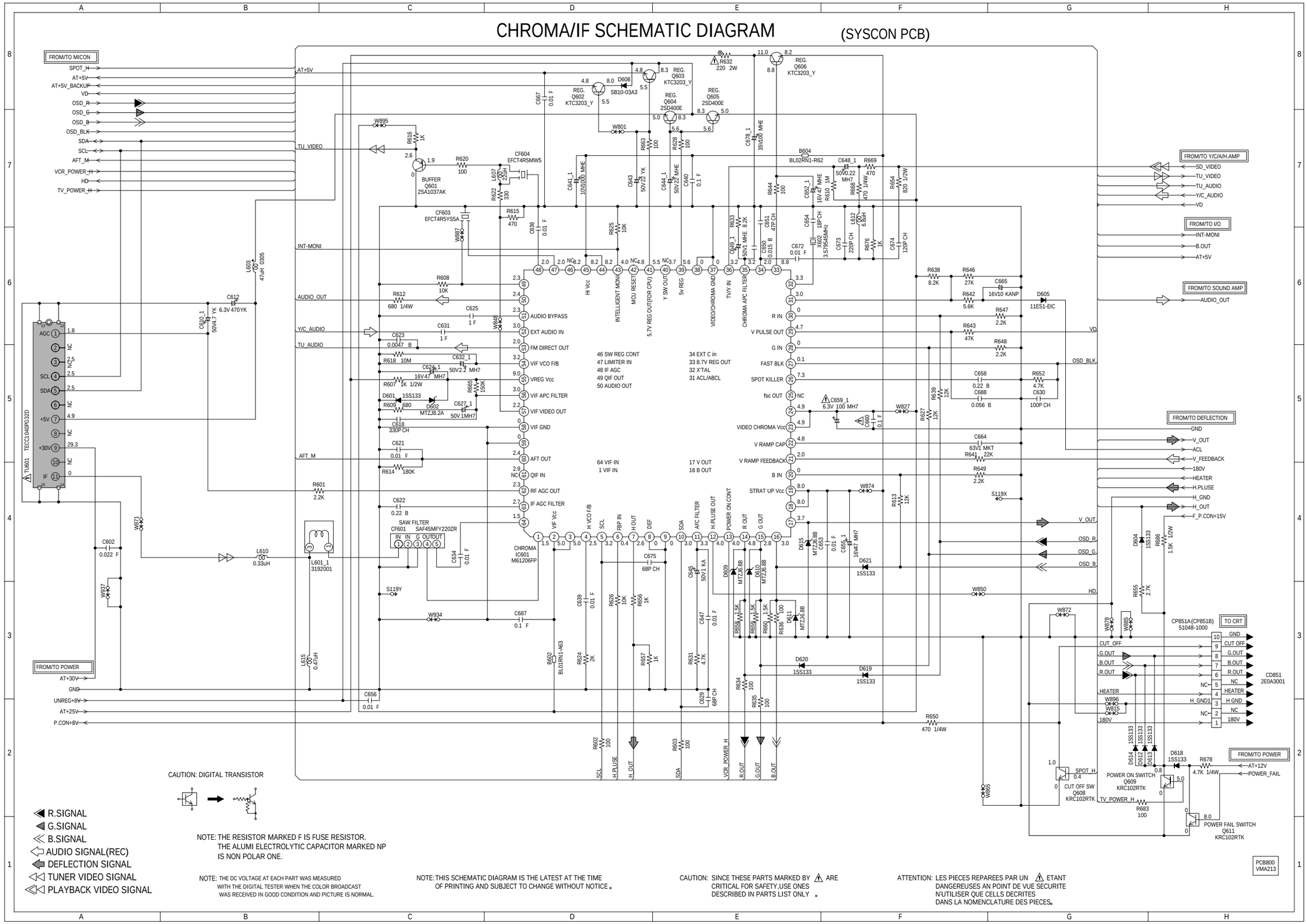
(SYSCON PCB)



[SYSCON PWB(MICON) CIRCUIT DIAGRAM]



[SYSCON PWB(CHROMA/IF) CIRCUIT DIAGRAM]

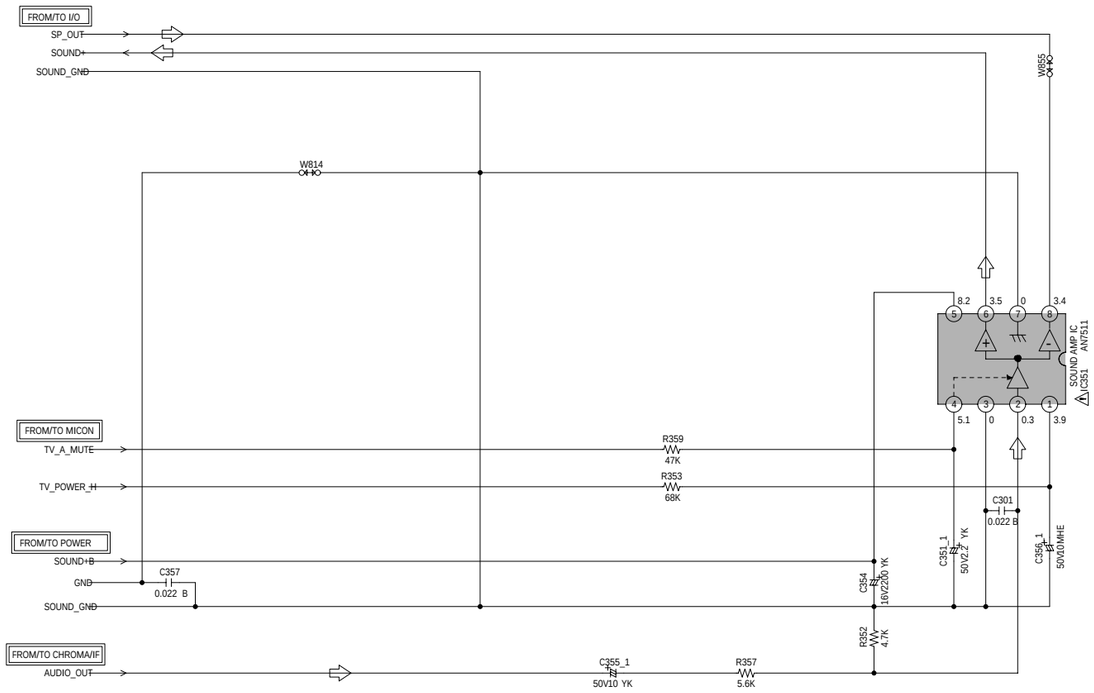


TV-13142
TV-13142W

[SYSCON PWB(SOUND AMP) CIRCUIT DIAGRAM]

SOUND AMP SCHEMATIC DIAGRAM

(SYSCON PCB)



NOTE: THE DC VOLTAGE AT EACH PART WAS MEASURED WITH THE DIGITAL TESTER WHEN THE COLOR BROADCAST WAS RECEIVED IN GOOD CONDITION AND PICTURE IS NORMAL.

NOTE: THIS SCHEMATIC DIAGRAM IS THE LATEST AT THE TIME OF PRINTING AND SUBJECT TO CHANGE WITHOUT NOTICE 。

CAUTION: SINCE THESE PARTS MARKED BY ⚠ ARE CRITICAL FOR SAFETY,USE ONES DESCRIBED IN PARTS LIST ONLY 。

ATTENTION: LES PIECES REPAREES PAR UN ⚠ ETANT DANGEREUSES AN POINT DE VUE SECURITE N'UTILISER QUE CELLS DECRITES DANS LA NOMENCLATURE DES PIECES。

[SYSCON PWB(POWER) CIRCUIT DIAGRAM]

POWER SCHEMATIC DIAGRAM

(SYSCON PCB)

CAUTION: FOR CONTINUED PROTECTION AGAINST FIRE HAZARD, REPLACE ONLY WITH THE SAME TYPE FUSE 5A 125V (F501).

ATTENTION: POUR UNE PROTECTION CONTINUE LES RISQUES D'INCEIE N'UTILISER QUE DES FUSIBLE DE MEME TYPE 5A 125V (F501).

5A 125V

DEGAUSS COIL L503 8R140031

CP502 TV-50P-02-A1

TH501_1 ZPB458L3R0A

W838

R500 2.7M 1/2W +-10%

C503_1 500V0.001 B

C502_1 500V0.001 B

D501 GBL06L-6177

C507 200V470 UF

R504 120K 1/2W

R510 120K 1/2W

POWER REG. IC IC502 STR-G6623

C535 2KV 680P YR

B505 BL02RN2-R6274

D520 1EQS04N

C512 0.001 B

C514 2KV0.0027 YR

R503 3.3K 1/4W

B502 BL02RN2-R6274

R543 2 680 1/4W

D506 RMPG06J

R502 4.7 1/4W

C510 35V100 MHE

D502 1SS133

D518 1SS133

R506 2.2K

D521 1SS133

C515 0.0022 B

R542 0.18 1W

HS502 763WSA0015

W851

GND1

C530 125V0.0047 MK

D528 MTZ5.6B

R505 330 1/4W

R554 22K 1/4W

R553 39K 1/2W

R532 4.7K 1/4W

R533 4.7K 1/4W

W883

FEED BACK SWITCHING Q507 KTC3198

PROTECT SW Q502 DTC144EKA

PROTECT SW Q508 DTC144EKA

C554 0.001 B

FEED BACK Q501 TLP621(GR)

C509 0.01 F

+B ADJ

VR502 330

R529 2.7K 1/4W +-1%

R516 10K

POWER_FAIL2

POWER_FAIL

PROTECT

CAUTION: DIGITAL TRANSISTOR

BLADE WIDE

WHITE

BLACK

S101A

S102A

AC120V 60Hz CD501 0R414905

5A 125V

F501 5A125V 233005

FH502 EYF-52BC

FH501 EYF-52BC

C506_1 250V0.22 ECQUL

L502 1R0A103F24

R501 2.2 5W

T501 8129015S

DC IN

NC

GND

COL

ADJ

SB

SG

12V

5V

LG

135V

HG

25V

W856

W904

W905

W922

C516 500V470P B

D505 SB290S

D508 1SS133

C518 500V470P B

D512 SB290S

D514 1SS133

C505 500V470P B

D507 15DF6

W817

D517 11ES1-EIC

C519 500V470P B

D519 SB290S

B503 BL01RN1-A63

C560_1 2KV0.0022 YR

D510_1 RU2AM

C517_1 2KV820P YR

W880

D504 1SS133

D513 1SS133

S113Z

S113Y

C518 500V470P B

D512 SB290S

D514 1SS133

C511_1 25V4701MHE

W817

C505 500V470P B

D507 15DF6

C523_1 35V470 MHE

AT+25V

POWER_FAIL

UNREG+8V

C524_1 16V1000 MHE

C534 16V1000 MHE

R640 10 1/2W

R651 10 1/2W

5V REG IC501 KIA78R05PI

D526 SB10-03A3

IN OUT GND SW

7.9 4.9 0 7.9

W936

C535 10V470 YK

C522_1 16V1 MHE

R522 100 1/4W

P.CON+8V

PCB800 VMA213

TP601

CP503 RE-H022TD-1130

CD503 JM-2BK-61

+B(A)

+B(B)

FROM/TO SOUND AMP

SOUND+B

GND

SOUND_GND

PROTECT

PROTECT DRIVE Q503 2SA1624

CS31_1 50V10 MHE

R519 47K

R521 1/4W 5.6K

R520 0.82 2W

+B

W830

FROM/TO Y/C/A/H.AMP

GND

P.CON+5V

FROM/TO DEFLECTION

+B

AT+25V

H_GND_1

GND

FROM/TO I/O

GND

P.CON+5V

FROM/TO MICON

GND

P.CON+5V

AT+12V

POWER_FAIL2

MOTOR_GND

FROM/TO CHROMA/IF

AT+12V

AT+30V

POWER_FAIL

AT+25V

UNREG+8V

GND

R512 56K 1/2W

R508 56K 1/2W

AT+30V

C521_1 160V100 VYE

D515 MTZ33B

S113Z

AT+12V

C511_1 25V4701MHE

W817

S113Y

AT+25V

C523_1 35V470 MHE

POWER_FAIL

UNREG+8V

C524_1 16V1000 MHE

C534 16V1000 MHE

R640 10 1/2W

R651 10 1/2W

5V REG IC501 KIA78R05PI

D526 SB10-03A3

IN OUT GND SW

7.9 4.9 0 7.9

W936

C535 10V470 YK

C522_1 16V1 MHE

R522 100 1/4W

P.CON+8V

PCB800 VMA213

FROM/TO CHROMA/IF

AT+12V

AT+30V

POWER_FAIL

AT+25V

UNREG+8V

GND

CAUTION: ⓜ IS THE LIVE CONNECTION

NOTE: THE RESISTOR MARKED F IS FUSE RESISTOR.
THE ALUMI ELECTROLYTIC CAPACITOR MARKED NP IS NON POLAR ONE.

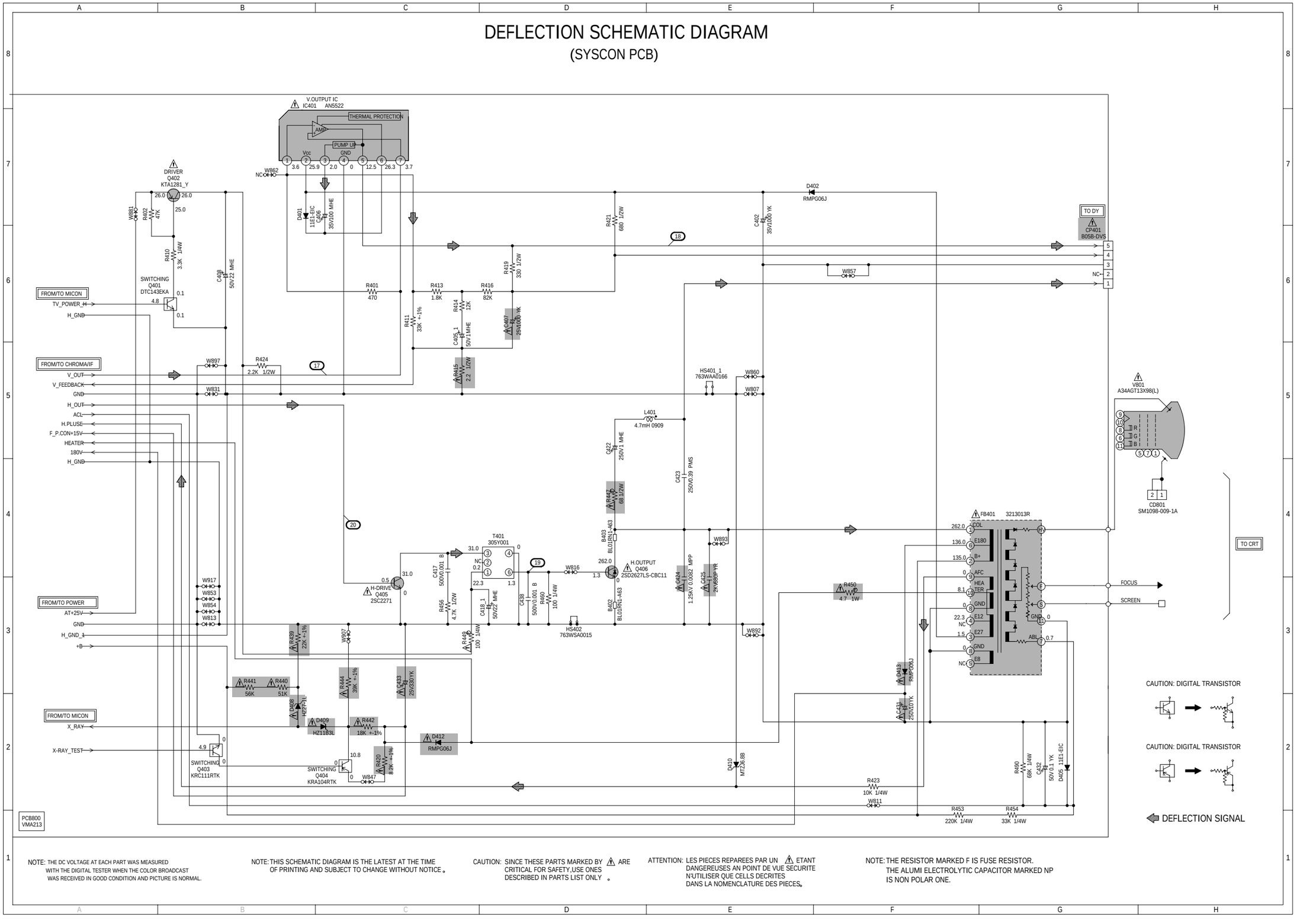
NOTE: THE DC VOLTAGE AT EACH PART WAS MEASURED WITH THE DIGITAL TESTER WHEN THE COLOR BROADCAST WAS RECEIVED IN GOOD CONDITION AND PICTURE IS NORMAL.

NOTE: THIS SCHEMATIC DIAGRAM IS THE LATEST AT THE TIME OF PRINTING AND SUBJECT TO CHANGE WITHOUT NOTICE。

CAUTION: SINCE THESE PARTS MARKED BY ⚠ ARE CRITICAL FOR SAFETY,USE ONES DESCRIBED IN PARTS LIST ONLY 。

ATTENTION: LES PIECES REPAREES PAR UN ⚠ ETANT DANGEREUSES AN POINT DE VUE SECURITE N'UTILISER QUE CELLS DECRITES DANS LA NOMENCLATURE DES PIECES。

[SYSCON PWB(DEFLECTION) CIRCUIT DIAGRAM]

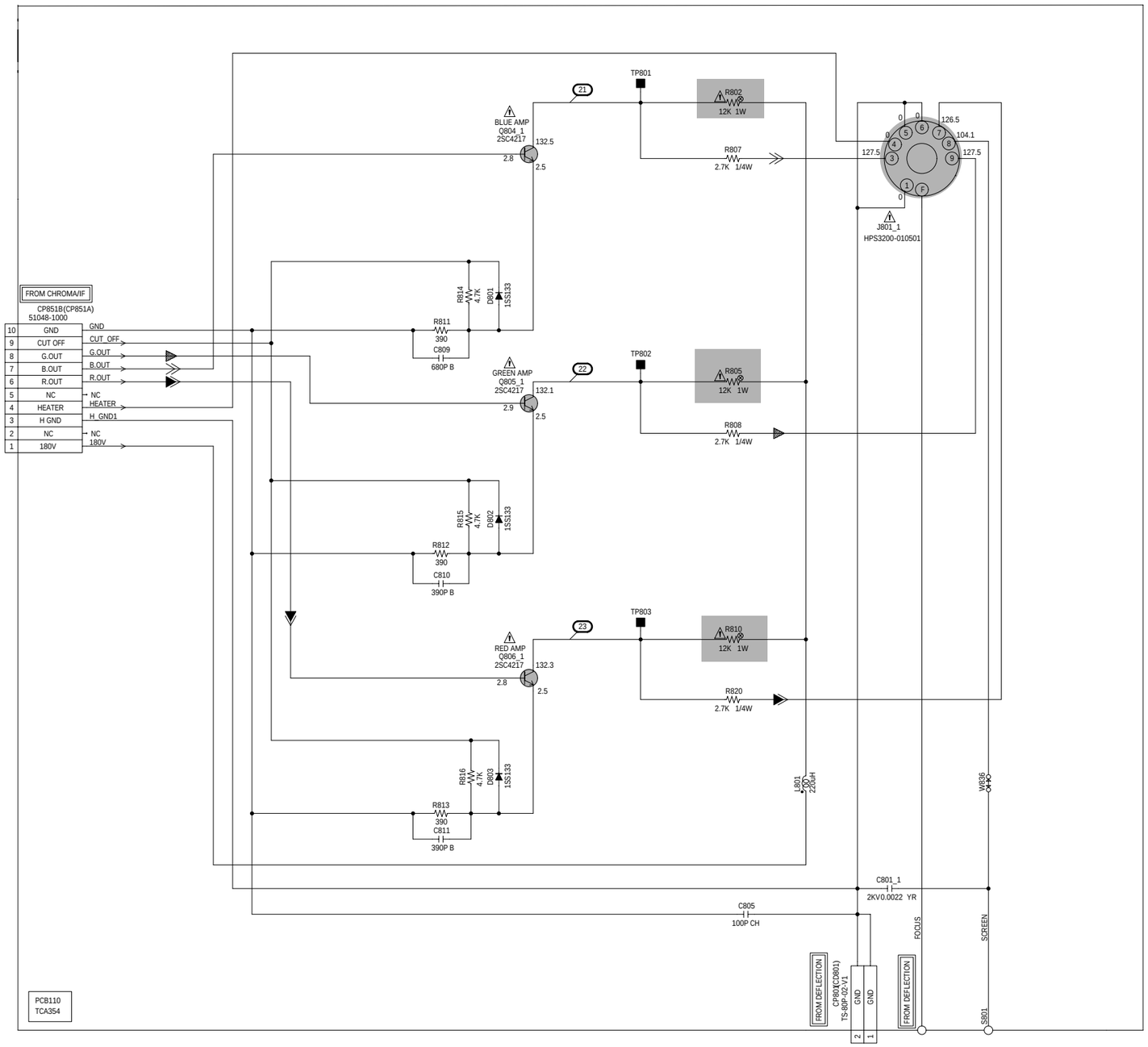


TV-13142
TV-13142W

[CRT PWB CIRCUIT DIAGRAM]

CRT SCHEMATIC DIAGRAM

(CRT PCB)



NOTE: THE DC VOLTAGE AT EACH PART WAS MEASURED WITH THE DIGITAL TESTER WHEN THE COLOR BROADCAST WAS RECEIVED IN GOOD CONDITION AND PICTURE IS NORMAL.

NOTE: THIS SCHEMATIC DIAGRAM IS THE LATEST AT THE TIME OF PRINTING AND SUBJECT TO CHANGE WITHOUT NOTICE 。

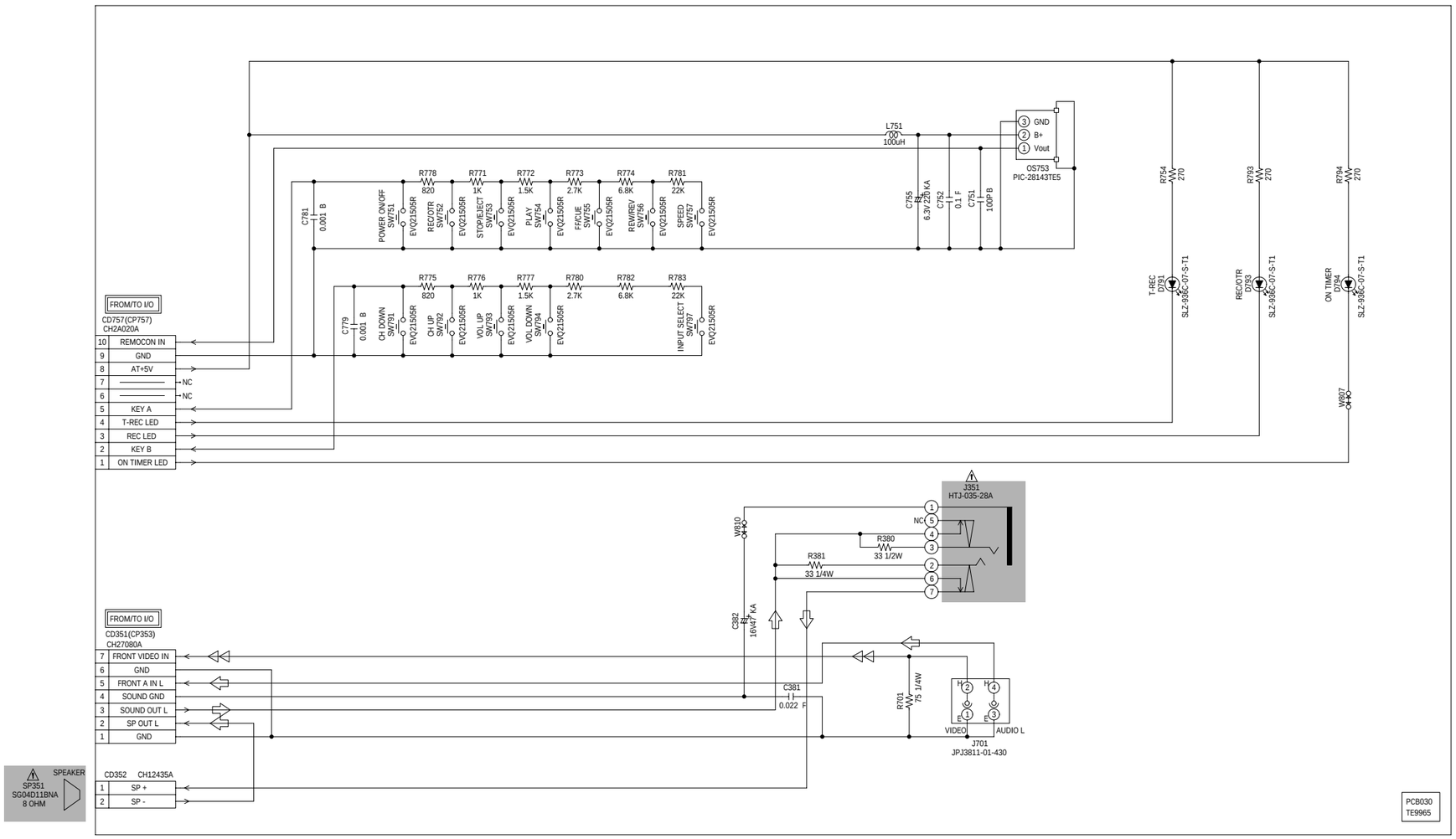
CAUTION: SINCE THESE PARTS MARKED BY ⚠ ARE CRITICAL FOR SAFETY,USE ONES DESCRIBED IN PARTS LIST ONLY 。

ATTENTION: LES PIECES REPAREES PAR UN ⚠ ETANT DANGEREUSES AN POINT DE VUE SECURITE N'UTILISER QUE CELLS DECRITES DANS LA NOMENCLATURE DES PIECES。

[OPERATION PWB CIRCUIT DIAGRAM]

OPERATION SCHEMATIC DAIGRAM

(OPERATION PCB)



NOTE: THE DC VOLTAGE AT EACH PART WAS MEASURED WITH THE DIGITAL TESTER WHEN THE COLOR BROADCAST WAS RECEIVED IN GOOD CONDITION AND PICTURE IS NORMAL.

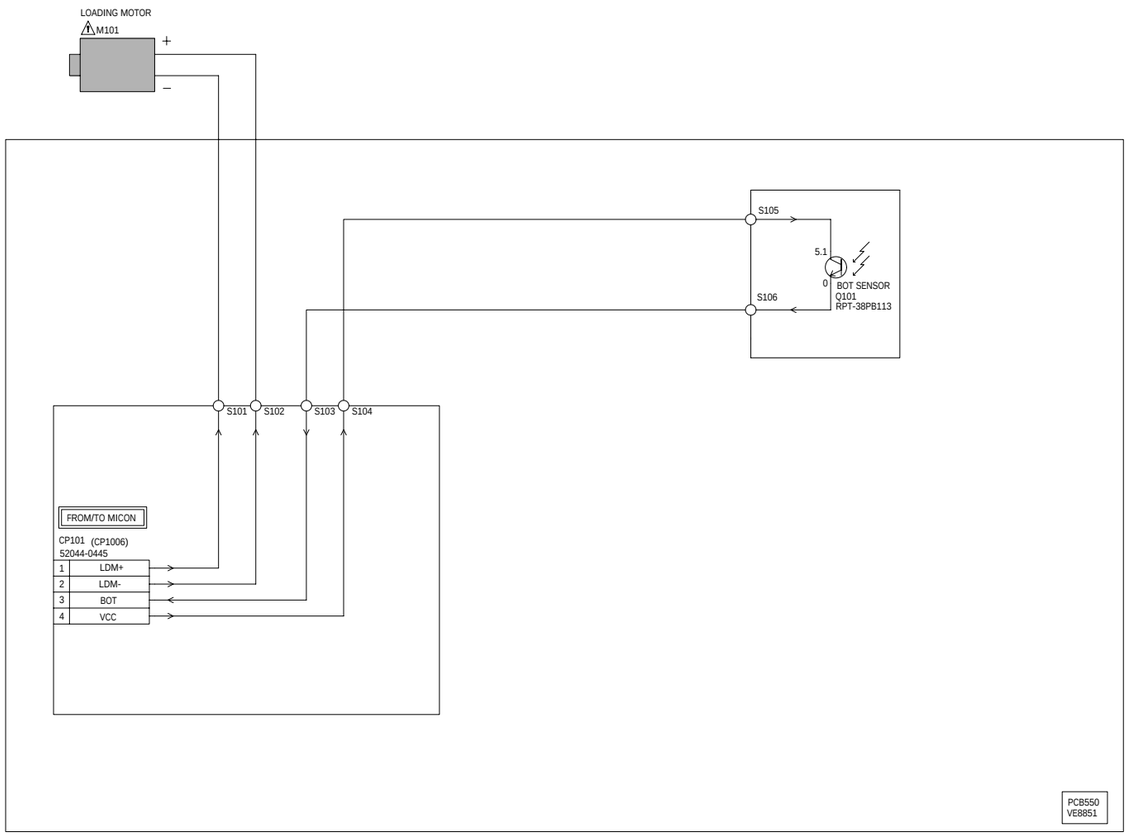
NOTE: THIS SCHEMATIC DIAGRAM IS THE LATEST AT THE TIME OF PRINTING AND SUBJECT TO CHANGE WITHOUT NOTICE。

CAUTION: SINCE THESE PARTS MARKED BY ⚠ ARE CRITICAL FOR SAFETY,USE ONES DESCRIBED IN PARTS LIST ONLY 。

ATTENTION: LES PIECES REPAREES PAR UN ⚠ ETANT DANGEREUSES AN POINT DE VUE SECURITE N'UTILISER QUE CELLS DECRITES DANS LA NOMENCLATURE DES PIECES。

[DECK PWB CIRCUIT DIAGRAM]

DECK SCHEMATIC DIAGRAM
(DECK PCB)



CAUTION: SINCE THESE PARTS MARKED BY ⚠ ARE CRITICAL FOR SAFETY,USE ONES DESCRIBED IN PARTS LIST ONLY 。

ATTENTION: LES PIECES REPAREES PAR UN ⚠ ETANT DANGEREUSES AN POINT DE VUE SECURITE N'UTILISER QUE CELLS DECRITES DANS LA NOMENCLATURE DES PIECES。

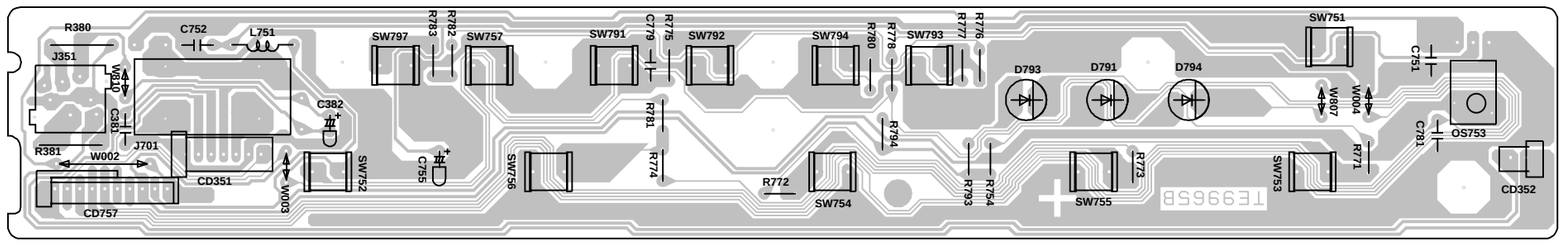
NOTE: THE DC VOLTAGE AT EACH PART WAS MEASURED WITH THE DIGITAL TESTER DURING PLAYBACK。

NOTE: THIS SCHEMATIC DIAGRAM IS THE LATEST AT THE TIME OF PRINTING AND SUBJECT TO CHANGE WITHOUT NOTICE 。

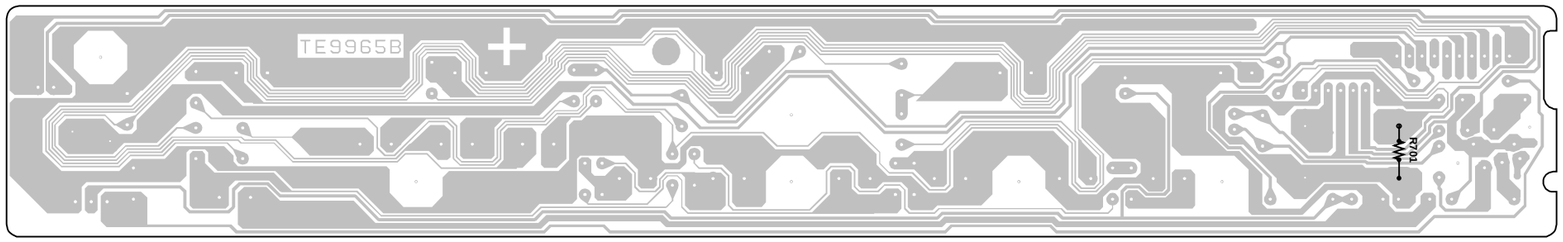
PATTERN DIAGRAMS

[OPERATION PWB PATTERN]

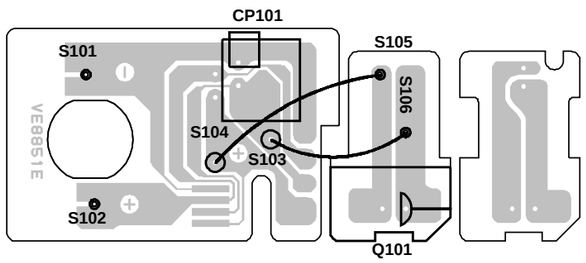
INSERTED PARTS



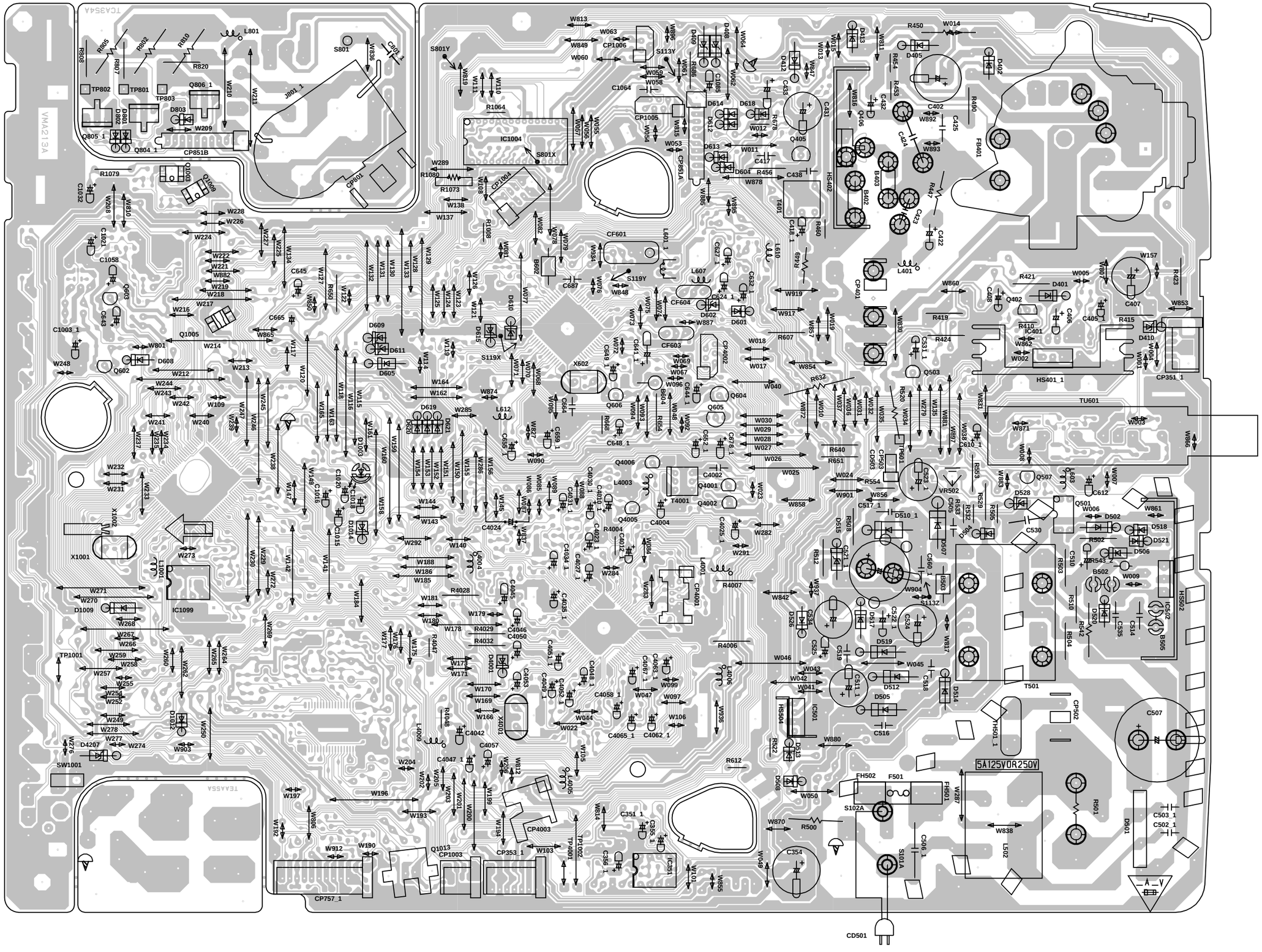
CHIP MOUNTED PARTS



[DECK PWB PATTERN]



[SYSCON/CRT PWB PATTERN(INSERTED PARTS)]


VMA213A
TCA354A
TEAA55A
S801
S801Y
S801X
S113Y
S119Y
S119X
S102A
IC1004
IC1099
IC401
CP851B
CP851A
CP1004
CP1006
CP1005
CP4001
CP4002
CP4003
CP1003
CP353_1
CP757_1
CP351_1
CP401
CP501
CP502
CP503
CF601
CF603
CF604
X602
X1001
X1002
X4001
TU601
T401
T501
T4001
HS401_1
HS402
HS501_1
HS502
HS504
FB401
SW1001
TP1001
TP1002
TP4001
TP601
FH501
FH502
F501
5A125V0R250V
CD501
Q1013
Q4006
Q1005
Q1006
Q1009
Q602
Q603
Q604
Q605
Q606
Q405
Q406
Q503
Q507
Q601
Q402
Q501
Q4001
Q4002
Q4005
Q806_1
Q805_1
Q804_1
L801
L1001
L4003
L4004
L4005
L4006
L601_1
L607
L610
L612
L401
L502
L503
J801_1
C801_1
C1032
C1079
C1058
C1003_1
C1020
C1018
C1015
C1016
C1014
C645
C665
C687
C1064
C1085
C1086
C433
C431
C432
C402
C425
C424
C423
C422
C421
C438
C417
C418_1
C527_1
C632_1
C624_1
C641_1
C649_1
C648_1
C669_1
C664
C695
C674_1
C652_1
C4002
C4001
C4024
C4025_1
C4023_1
C4012_1
C4027_1
C4035_1
C4045
C4046
C4050
C4051_1
C4083_1
C4067_1
C4063_1
C4058_1
C4062_1
C4065_1
C4066_1
C4042
C4057
C4047_1
C4030_1
C4031_1
C4034_1
C4401_1
C1085
C1086
C351_1
C355_1
C356_1
C354
C517_1
C510_1
C560_1
C521_1
C522_1
C524_1
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C511_1
C512
C516
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C514
C535
C530
C505
C506_1
C503_1
C502_1
C507
C612
C610_1
C533_1
C408
C407
C406
C405_1
C423
C1032
D1009
D1032
D4207
D1004
D1003
D1015
D609
D611
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D608
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D615
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D601
D620
D621
D619
D4001
D4002
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D405
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D503
D504
R1079
R1080
R1073
R1086
R1064
R678
R679
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R460
R450
R454
R453
R490
R447
R421
R419
R424
R423
R415
R410
R632
R640
R651
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R520
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R533
R532
R529
R505
R508
R512
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R4006
R4028
R4029
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R4047
R4048
R4004
R4001
R4002
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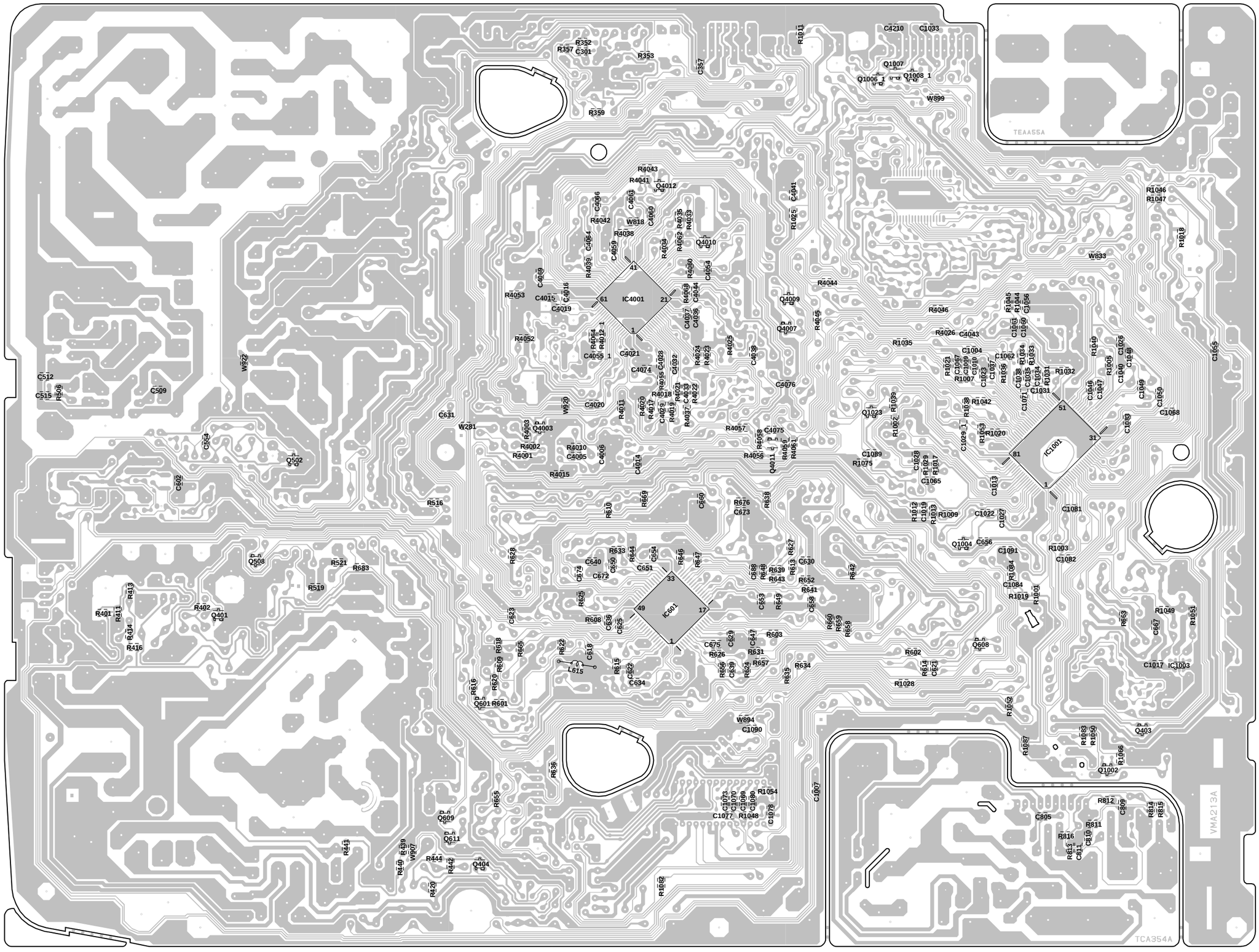
R4084
R4085
R4086
R4087
R4088

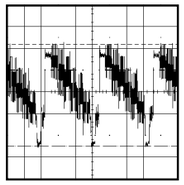
[SYSCON/CRT PWB PATTERN(CHIP MOUNTED PARTS)]



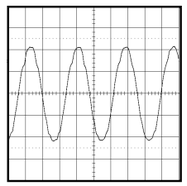
TV-13142
TV-13142W

WAVEFORMS

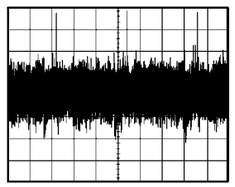
Y/C/AUDIO/CCD/HEAD AMP



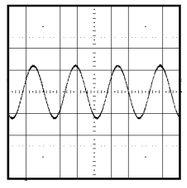
① PB
0.5V 20 s/div



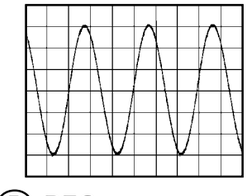
② POWER ON
100mV 0.1 s/div



③ PB
10mV 20us/div

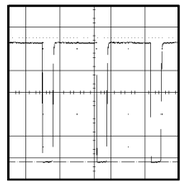


④ PB
0.5V 1ms/div

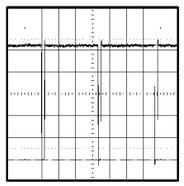


⑤ REC
10.0V 5us/div

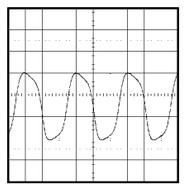
MICON



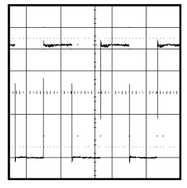
⑥ POWER ON
1.0V 20 s/div



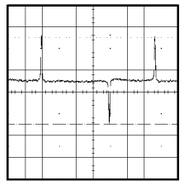
⑦ POWER ON
0.5V 10ms/div



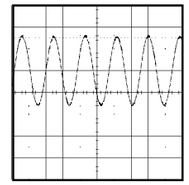
⑧ POWER ON
1.0V 10 s/div



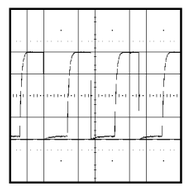
⑨ PB
1.0V 10ms/div



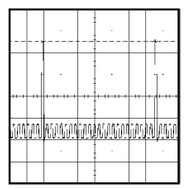
⑩ PB
1.0V 5ms/div



⑪ PB
0.5V 0.5ms/div

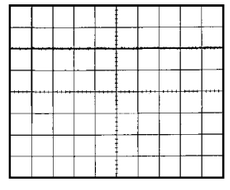


⑫ PB
1.0V 0.5ms/div

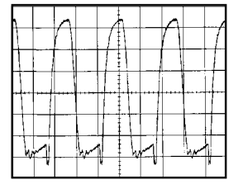


⑬ PB
1.0V 5ms/div

POWER

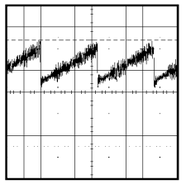


⑮ 5.0V 20ms/div

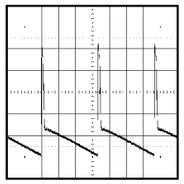


⑯ 500mV 5 s/div

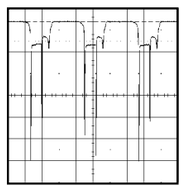
DEFLECTION



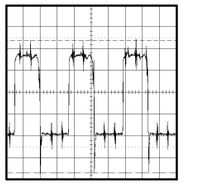
⑰ 0.5V 5ms/div



⑱ 10.0V 5ms/div

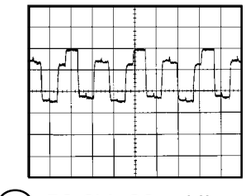


⑲ 2.0V 20 s/div

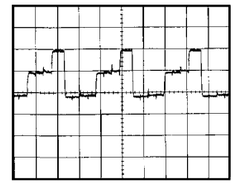


⑳ 200mV 20 s/div

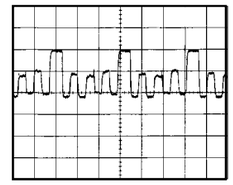
CRT



㉑ 50.0V 20 s/div



㉒ 50.0V 20 s/div



㉓ 50.0V 20 s/div

NOTE: The following waveforms were measured at the point of the corresponding balloon number in the schematic diagram.

NOTE: The following waveforms were measured at the point of the corresponding balloon number in the schematic diagram.